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TREATMENT OF SYPHILIS IN CHILDREN*‡

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When any phase of syphilis is dealt with from the standpoint of the Pediatrist, the immediate thought that springs to the front is the problem of hereditary syphilis. For although acquired syphilis is sometimes met in children, it represents the rarity while hereditary syphilis constitutes the majority of this disease in the young. In accepting the privilege of participating in this symposium on treatment of syphilis, I realize the impossibility of fully and adequately covering the subject in the necessarily limited time. Yet, I realize too, the possibility of contributing to the effort being made to achieve a much needed simplification of the never-ending list of methods of procedures.

Since the advent of salvarsan in 1910, a multitude of drug preparations and a multiplicity of methods have, from time to time, been advocated for the treatment of syphilis in general. Each of these has had its ardent advocates who have extolled the merits of drug and method of administration. Gradually it has become evident that simplification in the treatment of syphilis is not only desirable, but indeed, a necessary achievement for the benefit of both patient and physician. To be sure such simplification must provide results equal to modern standards of therapy. The responsibility of controlling this disease lies perhaps more directly upon the shoulders of the pediatrist than upon any other specialty; for while the urologist does come in more direct contact with syphilitic patients, and the obstetrician is called upon to contribute in the general attack against this disease, it is the pediatrist who has the earliest opportunity to so manage the individual case as to remove it as a scourge to the patient and also as a source of dissemination to others.

There can be no doubt that the easiest, surest and best manner of managing hereditary syphilis is, when possible, by the prophylactic treatment of the parent. It has been abundantly established that adequate anti-syphilitic treatment of the mother during pregnancy will result in the birth of a non-syphilitic offspring; and, there seems to be agreement, too, on the proposition that when the mother received treatment during pregnancy, even though this be inadequate to achieve a cure, the resulting syphilitic offspring is more readily amenable to successful treatment. Looking beyond the cure of the individual case, and visualizing the attack against the disease in general, it is recognized that the mother's treatment must be continued until complete cure is effected, and also that the father must submit to treatment until completely cured; otherwise subsequent pregnancies will result in the birth of potentially syphilitic offsprings.

In the treatment of the newborn exhibiting hereditary syphilis there are four drugs more or less in general use: mercury, arsenic, bismuth and the iodides. Of these mercury has been in general use for a much longer period than any of the others, and in many quarters is still regarded as the sheet anchor. For although

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experiments with the various preparations of arsenic and bismuth offer encouragement to those not satisfied with the efficacy of mercury, further evidence of their superiority must be shown; otherwise mercury must continue to occupy the position of highest desirability. It is, of course, understood that in selecting a drug as the most reliable agent in combatting a disease, one must consider its therapeutic efficacy; its freedom from damaging effects upon the organism; and finally its ease and practicability of administration.

Of the many preparations of arsenic that have been advocated for the treatment of syphilis, we may briefly give an itemized inventory. *Arsphenamin* proper, "606", has been tested in the field of pediatrics, and has been found wanting. This statement is based upon the known long list of serious disadvantages it possesses, and notwithstanding its superior therapeutic efficacy over all arsenobenzenes. Arsphenamine is the most toxic of the group, as demonstrated by the high mortality incident to its use, and, because of its pain-producing action when injected into tissue it must be given intravenously and in large dilutions; this makes it entirely impracticable for introduction into the small circulation of the infant. Therefore, arsphenamine is not recommended for the treatment of hereditary syphilis.

Neoarsphenamine has been, and is at the present time recommended for the treatment of infantile syphilis. It is not as toxic as arsphenamine, and it can be given with safety in small solutions when used in moderate doses. Though not to the extent of arsphenamine, neoarsphenamine is possessed of a high therapeutic efficiency. However, when used in doses which will insure safety, many relapses occur, while the use of doses calculated to represent therapeutic equivalents of arsphenamine, in our own experience as well as that of others, carries with it the possibility of complications almost as numerous and serious as with arsphenamine. Moreover its use is apt to produce injury to the blood and blood-forming organs in a greater percentage of cases than arsphenamine. It is unstable in solution and slight errors in technic markedly increase its toxicity. It therapeutic effect is variable, as shown by its lesser effects upon the blood Wassermann. The ideal procedure in using neoarsphenamine is its administration into the jugular vein. This is by no means a simple procedure, nor is it entirely free from serious accidents or reactions. In fact, the procedure is safe only in the hands of those who have developed skill in the technic, and should not be attempted by those who have not such skill. For these reasons neoarsphenamine, too, is not recommended for routine use in the treatment of infantile syphilis.

We next pass to a consideration of *sulpharsphenamin*. After a period of experimentation this preparation was heralded as the drug which would finally fulfill all requirements. Its therapeutic efficiency is at least equal to that of neoarsphenamine; it has been shown to possess a high penetration of the nervous system and its action on blood Wassermann and neurosyphilis, when administered by the intra-muscular route, is better than neoarsphenamine. Its use is not associated with the Herxheimer effects because of its slow absorption, and its animal toxicity is relatively low. Sulpharsphenamin is stable under market conditions and also very stable in solutions; its administration produces few immediate reactions and the technic of administration is simpler, being given either subcutaneously or intra-muscularly.

To be sure, sulpharsphenamin, like all arsenobenzens, possesses certain characteristics which make its routine use somewhat unsafe in many cases; its tendency to serious injury of the vascular system and the high incidence to dermatitis, coupled with the fact that its effects are less lasting than other arsenobenzenes, necessitating the administration of a larger number and more frequent injections, constitute serious objections to its routine use.

Careful comparison of advantages and disadvantages of the arsenobenzenes, however, clearly places sulpharsphenamin in a position of decided choice in this group.

Next, one has to give consideration to Stovarsol (acetylaminohydroxyphenylarsonic acid), a preparation containing 27.1 to 27.4 per cent of arsenic. Its most manifest advantage, I think, is the ease and simplicity of its administration, it being given by mouth.

Its therapeutic efficiency undoubtedly has been established to a satisfactory degree, and A. F. Abt and A. S. Traisman believe that "the peroral administration of stovarsol is the method of choice in the treatment of infantile syphilis." However, even they sound a word of warning that its use calls for "close and strict supervision of cases so treated, if serious untoward effects are to be avoided." My own notes contain records of two newborn syphilitics in whom the administration of stovarsol apparently precipitated the onset of renal lesions which eventually led to deaths. This, with other experiences and information gathered from other workers, causes me to entirely subscribe to the idea already set forth by others, that with our present knowledge this preparation of arsenic may be said to be yet in its probational stage. Its routine use can not be recommended until its real position can be determined by further clinical experience at the hands of those who have ample clinical material and sufficient interest to determine its merits on a large scale.

Bismarsen injected intramuscularly is recommended as an alternate drug for the treatment of infantile syphilis. This drug like other preparations of this type also possesses many disadvantages, and besides, so far, appears to offer nothing that bismuth alone or alternating with an arsenobenzene offers.

As early as 1889 Balzer studied the effect of bismuth in dogs, and found that severe stomatitis and enteritis resulted. In 1921 this drug was first used in the treatment of syphilis, and in 1922 Sazerac and Levaditi proved the value of bismuth in the treatment of syphilis. They concluded from their experimental results that "bismuth exercised an incontestable therapeutic action upon experimental syphilis." These favorable results were confirmed by Fournier and Guenot. In the treatment of infantile syphilis bismuth has been used with benefits parallel to those in the acquired form. Although inferior to the arsphenamines as a spirocheticide, it causes almost as rapid disappearance of syphilitic manifestations, and since it is practically non-toxic, it is considered by many to be superior to mercury. Wright uses bismuth "as the main adjunct to the arsphenamines, confining the use of the latter to one or two courses of eight injections, and then depending upon bismuth to complete the arrest of the disease." Many syphililogists consider bismuth to possess a higher antisyphilitic action then mercury. Its use is preferable because of its very low toxicity. In cases of arsenical poisoning, bismuth may be used for injections without untoward symptoms, whereas, mercury quite often produces serious reactions when used this way.

The use of bismuth as a routine in the management of infantile syphilis, however, is not recommended in a general way, because frequently cases occur in which a condition of so-called "bismuth fast" develops. It then becomes necessary to supplement it with another drug, and in such cases the drug of choice is mercury.

Passing now to mercury, it can be definitely stated that this drug in the field of infantile syphilis probably has no superior. It can be administered with ease and safety, while its anti-syphilitic action has been repeatedly proven. Even when administered in doses which are too large for the individual case, the appearance of diarrhea leads to cessation of active administration of the drug, and within a few days treatment may be resumed, using a smaller dose with safety. There are no drastic or real serious toxic effects, and the curative action of mercury is equally marked, whether the drug is used by inunction, oral administration or by injection.

From our own experience and information at present at hand it is recommended that main reliance in the treatment of hereditary syphilis be placed in the use of mercury, and that arsenic therapy should rank second in importance.

(1) Because of the lesser danger of serious reactions, and
(2) Because of the uniform rapid improvement which follows its use in a large majority of cases.

If arsenic preparations are used, they should be used for initial courses only and then followed up with mercury for completion of the treatment. Our own experience indicates the conviction that the arsenabenzene of choice is *sulpharsphenamine*.

The routine recommended at present is to obtain control of the disease by an initial, in-

tensive course of treatment with mercury inunctions, using unguentum hydrargyrum or blue ointment (grs. X) daily for a period of two weeks; this preparation is far superior to calomel ointment. We do not employ intramuscular administration of mercury because it has proven unnecessarily painful and otherwise objectionable. The intensive, initial treatment may consist of a series of subcutaneous or intra-muscular injections of sulpharsphenamine, six injections being given at intervals of four to six days. The dose administered, though influenced by the age and weight of the patient, averages as follows:

1st injection	0.05 gm.	in	.5cc	of	sterile	water
2nd. "	0.1 gm.	"	1cc	"	"	"
3rd. "	0.1 gm.	"	1cc	"	"	"
4th. "	0.1 gm.	"	1cc	"	"	"
5th. "	0.1 gm.	"	1cc	"	"	"
6th. "	0.1 gm.	"	1cc	"	"	"

Based on age the average initial does is as follows:

Birth to 1 month	0.03 gm.	in	0.3cc	sterile	water
1 month to 2 months	0.05 gm.	in	0.5cc	"	"
2 months to 6 "	0.07 "	in	0.7cc	"	"
6 " to 12 "	0.1 "	"	1cc	"	"
1 year to 2 years	0.15 gm.	"	1.5cc	"	"

These doses conform in a general way to calculations based of the dosage of 0.01 gm. per kilogram of body weight.

After the intensive course of mercury or sulpharsphenamine, mercury is administrated by mouth in the form of hydrargyrum cum creta in doses of gr. 1/2 to gr. 2 three times daily, depending upon the age and weight of the infant, or in the form of hydrargyrum iodidum flavum in doses of gr. 1/20 to gr. 1/10, again depending on the age and weight of the infant. We prefer, and use almost exclusively, the hydrargyrum cum creta. This oral administration of mercury following the initial intensive course is employed continuously for one year in infants, and two years in older children after the Wassermann has become negative. In some cases it is necessary to continue treatment three years or even longer.

All cases of hereditary syphilis require most thorough physical, serological and roentgenologic examination in order to determine the localization of organic lesions. After a case is clinically and serologically well, Wassermann tests should be made every six months throughout infancy and early childhood, and again at puberty. In this way only can one be certain that permanent cure has been achieved.

In conclusion I wish to emphasize several points that are of vast clinical importance in the management of hereditary syphilis.

1. Only a few newborns exhibit clinical evidence of hereditary syphilis during the first two weeks of life. The majority are seen from this time to the fourth month.
2. A positive Wassermann of the cord blood justifies the institution of early treatment, even in the absence of clinical evidence.
3. A negative Wassermann of the cord blood in a child whose mother is definitely syphilitic, though she may have received treatment during pregnancy, does not signify that the newborn has escaped infection.
4. At no time, during the course of a treatment, should a negative Wassermann in early infancy be considered sufficient evidence to interfere with completion of the course as outlined.
5. Complete cure and elimination of possible late syphilis of the central nervous system are made more probable in direct relation as to how early treatment is begun.

THERAPY IN PRIMARY SYPHILIS
WITH SPECIAL REFERENCE TO BISMUTH ARSPHENAMINE SULPHONATE (BISMARSAN)*

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The kaleidoscopic pace at which the medical profession has been bombarded by pharmaceutical houses with drugs of most intricate chemical formulae for the treatment of patients afflicted with syphilis since the introduction of the arsenical compounds by Ehrlich in 1910, leaves most of us in a maze.

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Having had the good fortune, or misfortune, depending upon the viewpoint, of beginning my medical practice in the midst of this therapeutic transition, flanked on the one hand by a time-honored mercury and iodine regime, and, on the other, by the new and long-awaited arsenical and bismuth compounds, and being privileged to supervise the treatment of syphilis in the out-patient clinics of two of our largest hospitals over a period of years, it is hoped that my observations and conclusions may serve of value in this symposium on the treatment of syphilis.

My remarks are to be confined to the therapy of primary lues. It is in this stage of syphilis that our greatest responsibility lies, for if the therapeutic efforts employed are not adequate, serious sequelae can be anticipated. Sufficiently early treatment therefore is imperative. The stigma attached to the disease could be better ameliorated if this fact were better appreciated by those infected.

Dark field examinations of scrapings from each and every extra-genital as well as genital sore should be available to all and where such lesions reveal doubtful findings the adjacent lymphatic glands, where palpable, should be aspirated and the serum submitted to microscopic study for spirochaeta pallida. Unless physicians adopt such routine certain borderline lesions might escape true recognition. It should be obvious that where the ulcer has first been treated by the patient with the usual chemical caustics obtained at a drug store, the true character of the infection becomes increasingly difficult. In making a diagnosis of syphilis many physicians avail themselves of a blood Wassermann test in preference to studies of scrapings. Knowing as we do that it requires from two to six weeks after exposure for the complete fixation reaction to become positive and that valuable time is lost in the interim, the superiority of dark field studies, in skilled hands, seems self-evident.

Complete physical examinations, particularly of the skin in its entity, the mucous membranes, the lymph glands, etc., should not need emphasis. The recognition of heart disease, tuberculosis, or nephritis, as they bear directly on the therapy planned is most important.

Admitting the diagnosis established, it behooves the physician frankly to explain to the patient his predicament. The degree of intelligence as well as the psychic slant of the patient must be considered in the first interview. If unmarried the patient must be warned about exposing others to his infection; if married, the wife or the husband, as the case may be, must also undergo examination. With tact this can be managed in a way that will seldom result in marital rupture. It cannot be emphasized too forcefully that no time limit can be set for a cure in syphilis. The charlatan who guarantees a cure in from three to six months has created much havoc in the minds of those easily led astray. In time so limited as is allotted this presentation no adequate discussion of this important phase of case-management can be entered into here.

Many plans have been suggested for sterilizing the initial lesion of syphilis. Its accessibility at times furnished a problem. A chancre under a tight prepuce, where either phimosis or paraphimosis supervenes, demands surgical measures to the constricting tissues. A dorsal slit or the severing of a constricting band behind the glans may prevent necrosis. The sore proper is treated with nitric acid by some; frequently the actual cautery is used, while still others use a simple dusting powder and let it go at that. In our experience nothing works quite as well as the Rosenwald solution and ointment; the former being applied on a pledget of cotton for twenty-four hours only and the latter is then continued locally until resolution occurs, which is usually a week.

Personal equation still enters into the selection of the arsenical and bismuth compounds used in treating this disease. Likewise the avenues through which antileutic medication is to be introduced into the patient brings us to debatable ground Opinion, however, is united in the matter of thorough and unremitting treatment, extending over a period of years if necessary, with recognized agents until one feels reasonably certain of cure.

Many highly esteemed and authoritative syphilographers both here and abroad, advocate the concurrent use of a heavy metal with arsenic. Not only is continuous therapy super-

ior to interrupted treatment but it appears that the concurrent use of drugs is paramount to the alternating plan. Obviously, we treat the patient rather than the disease; still we can hardly compromise with so devastating a host as syphilis. Treat the disease vigorously while ever keeping check on the patient's resistance by periodic urinalyses, 'phthalein readings, blood pressure determinations, etc.

Our clinical experience has convinced us that intramuscular administration of the principal antiluetic drugs is superior to intravenous injections. Furthermore, we feel that it is most important to avail ourselves of all three of the drugs commonly used in syphilis therapy, namely, bismuth, arsenic and mercury.

The plan we follow at present is as follows: Twenty intramuscular injections of bismuth arsphenamine sulphonate at from five to seven day intervals. The initial dose is 0.1 gm., which tests the susceptibility of the patient. Sometimes we consider it best to give this smaller dose for two or three injections. Then we increase the dose to 0.2 gm., and continue the same. After the twenty bismarsan injections no rest period is given. Immediately we follow with twenty intramuscular administrations of either mercury potassium iodide, gr. ½; mercury benzoate, gr. 1/3; or, mercury succinimide gr. 1/6. Some patients are found to tolerate one mercurial better than another and so we finally select, of the three soluble preparations mentioned, the one best fitted to the individual. Mercury intramuscuscularly is given every third, fifth or seventh day, depending upon tolerance.

Immediately following the mercury series, a second interval of twenty bismuth arsphenamine sulphonate injections are given. In all, three arsenic-bismuth and three mercury series, extending over a period of approximately fifteen months, are administered without a rest. Such a plan of therapy in primary syphilis we consider rational; anything less than this is not adequate. A rest period of six weeks follows the fifteen months of treatment and then a blood Wassermann. If negative, the Wassermann is repeated every four months for at least two years. Whenever the Wassermann is reported positive the fifteen months of treatment is repeated.

Anticipating that many will find objection to so much intramuscular therapy, contending that treatment so given is painful (to the point of incapacity at times). that absorption by this route is variable in degree and that occasionally abscesses follow gluteal injections, we wish to state that with a proper selection of areas into which the three-inch needle can be introduced, the insistance that the patient be in a prone posture to receive the treatment and the selection of drugs promptly soluble, make the management of primary syphilis both safe and simple.

THE TREATMENT OF VISCERAL SYPHILIS: THE USE OF BISMUTH*

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Syphilis has been described as the disease most protean in its manifestations. We sometimes overlook the fact that this is true because the organism is so general in its distribution in the body and sooner or later involves or may involve any one or many structures. This characteristic of the disease naturally suggests to us the necessity for a thorough general examination before beginning the treatment of any victim of this infection, especially in all cases of long standing. Even though every finding be normal, the records of such an investigation will enable us better to evaluate any later indications of pathological changes.

One of America's greatest clinicians remarked that he owed his success in medicine to the fact that he always suspected syphilis. The status of the disease since his day has not changed in this particular. No case history should be considered complete until such possibilities have been thoroughly covered. This applies particularly to such oft neglected manifestations as frequent abortions, still-births or children dying soon after delivery and the history of a family tendency to sudden deaths, paralyses and related conditions occurring in middle life. Such findings

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as involvement of the aorta or of the aortic valves or the presence of an aneurysm call for the exclusion of syphilis or the treatment of the disease. Attention is being directed lately to the frequency with which some previously obscure conditions such as persistent, unresolved pneumonia are responding to antiluetic treatment.

We hope to see the day when every patient admitted to any hospital will be given the advantage of a routine blood Wassermann test and when, at the same time, we will better appreciate the fact that a negative Wassermann does not eliminate the possibility of an old but still active syphilitic infection, particularly in cases of visceral involvement.

The length of time after the primary infection before such structures as the heart and liver may be invaded is still unsettled. The usual belief is that it occurs within the first few weeks of the disease process. The studies of Herrmann and Jamison rather indicate that in many cases it may occur at a much later time than was previously supposed.

Among the important structures, the circulatory apparatus is the one most frequently affected. Conner mentions aortitis as being found in from 50 per cent to 85 per cent of all autopsies of patients dying from this disease. Warthin found in all of his autopsies that the heart was involved.

Next in point of frequency comes the liver. Symmers reported such change in this organ in one-third of his autopsies of luetic patients. The frequency with which the stomach, intestines, pancreas, kidneys and other structures may be the sites of active invasion is less certain, but such developments are all too frequent.

The recognition of visceral complication is of importance from every standpoint, a major consideration being the value of such information in directing the selection of the therapeutic agents. The degree of involvement of such structures as the heart and liver is of particular value in determining whether the treatment will be intensive or more moderate and also the duration of the course. Not only should the treatment in these cases be less energetic but it should be continued for a longer period of years. Extensive visceral involvement may result in serious reactions of the Herxheimer type. There is no other one factor more directly affecting the prognosis than the extent and degree of visceral damage.

Schamberg and Wright have earnestly called attention to the fact that in the treatment of syphilis the specialists in genito-urinary diseases are apt to treat the infection and neglect the damaged structures, while the internist is apt to treat the damaged structures and neglect the infection and that in the first instance particularly we may witness the "medical paradox" —the infection clears up but the patient gets worse.

When the cardiovascular system is invaded, the outcome depends largely upon an early diagnosis and the prompt institution of effective treatment. The damaged organ requires all of the measures of general care that would be exercised in damage from any other cause. This includes particularly rest, both mental and physical, body comfort, careful diet and the elimination of alcohol and tobacco or restriction of their use.

When there is evidence of failing compensation, the usual therapeutic agents may be required. Herrmann and Jamison have particularly emphasized the value of small doses of digitalis in preference to full digitalization. They have also employed theophyllene ethylenediamine with the same favorable results that Musser and others have obtained in other types of coronary impairment.

Intensive specific treatment may lead to the sudden disintegration of more or less extensive heart lesions or to a too rapid replacement of normal structure by non-elastic, fibrous tissue. The treatment may interfere with coronary circulation through edema at the coronary orifice or later because of the contraction of scar tissue. Practically all syphilologists recognige the value of small doses of neoarsphenamine, usually beginning with about 0.1 Gm. or less and gradually increasing, the maximum being 0.4 or 0.5 Gm. It is uniformly recommended that even this medication be delayed until after a preliminary treatment of a month or two with more slowly acting agents. In the presence of myocardial disease, definite coronary changes or aneurysm these precautions are particularly important and

iodides are especially of value. It is in such cases that bismuth has established its particular usefulness, some even going so far as to claim that it may meet all of the requirements for specific medication.

The frequency of liver involvement is almost equal to that of the heart, but such invasion is very often unrecognized (Schamberg and Wright). Here again energetic treatment may lead to disastrous results and the arsphenamines are particularly contra-indicated or, if used at all, should be employed with even greater caution than was mentioned in discussing the heart. In early luetic hepatitis, the iodides are probably without value, although later in the disease they may have a distinct field of usefulness. Bismuth is increasing in favor as the main reliance.

The question as to the most favorable diet is still unsettled. A high carbohydrate intake is the one of most frequent choice though Craven has done some excellent work that tends at least to open up this controversy again.

The lungs are rarely the site of active lesions and such are probably less frequently recognized. The condition may simulate tuberculosis or carcinoma. Pulmonary involvement does not influence the usual course of treatment.

The kidneys may be invaded directly by the specific organisms, but the kidney damage most frequently encountered is probably the result of treatment. Mercury should be avoided and neoarsphenamine should be employed with caution in the presence of renal impairment. The status of bismuth here is somewhat unsettled, some relying upon it almost entirely, others claiming that it is rather unsafe. The avoidance of renal irritants, a low protein diet and all of the other measures of general care should not be neglected.

When the gastro-intestinal tract is the site of active lesions, full energetic treatment is not contra-indicated except in the presence of ulceration in the esophagus, pylorus or rectum. Pancreatic invasion also does not contra-indicate active treatment.

Bismuth in the treatment of syphilis was introduced by the French about twelve years ago. Due to indiscretions in its employment, resulting from a limited knowledge of its toxic possibilities, many unfavorable developments resulted and its general employment was somewhat delayed. Many still hesitate as there is not yet a perfect evaluation of its possibilities of harm or uniformity of opinion as to its full value. Schamberg and Wright feel that it is the greatest advance in the therapy of this disease since the development by Ehrlich of the arsphenamines and that it is superior to mercury in its effect and far less toxic.

Its specific action is not thoroughly understood, but probably results through some obscure chemical changes taking place after the drug is assimilated. It is excreted principally by the kidneys. Bismuth is not well absorbed from the intestinal tract or by inunction, so cannot be employed in either of these ways. The intravenous route is fraught with many dangers and at present it is being administered almost exclusively by intramuscular injection.

The last U. S. Pharmacopeia was published too long ago to include any preparations for such employment. New and Non-Official Remedies contains thirteen preparations for the specific treatment of lues. Four of these are water soluble, four are oil soluble, four are insoluble suspensions, and one is a solution in a special solvent. The water soluble salts are the most rapidly assimilated, obtain the quickest therapeutic response, are eliminated with the greatest rapidity and are most apt to cause toxic symptoms. To maintain therapeutic effect they must be given at more frequent intervals. Next in these qualities comes the oil soluble salts and lastly the insoluble suspensions. The solution that is dissolved in ethylene glycol may be classed with the water soluble products. Greenbaum with his usual thoroughness has demonstrated that there is a wide range of therapeutic value in even the different members of these particular groups, and he feels that merely administering an available bismuth salt does not necessarily mean efficient bismuth medication. The possibility of administering a "sterilizing dose", as Ehrlich dreamed to be possible with arsphenamine, is not hoped for in the case of bismuth, as it has been proven that this would require a larger amount than could be tolerated by the human host.

The toxicology of the bismuth preparations should be thoroughly understood by those employing them in intensive treatment. Fatal or even severe reactions are comparatively rare, but mild and moderate toxic manifestations are quite common. Large amounts of bismuth subnitrate used for other purposes sometimes have resulted in poisoning, but it has been felt that most of these were due to the formation of the nitrite from the nitrate radical. The principal toxic symptoms of bismuth as used for syphilis may be briefly stated as follows:

Systemic: Headache, malaise and body pains especially in the muscles and bones. Agranulocytosis has been reported.

Cutaneous: These closely simiulate those of the arsphenamines and may be pruritus, erythema especially of a scarlatiniform type, urticaria, dermatitis or even hemorrhagic lesions.

Gastro intestinal: There may be a blue line on the gums, gingivitis, stomatitis, nausea, vomiting and diarrhea.

Kidneys: There may be a slight reduction in output, rarely an albuminuria.

In the management of bismuth poisoning, the principal and usually the only measure necessary is to discontinue the drug. Otherwise the treatment is symptomatic. Sodium thiosulphate may be used as in arsenic poisoning. It is interesting to note that most of the severe reactions have been reported by European clinicians where the drug is employed in much larger doses than is customary in this country.

There is usually some local discomfort at the site of injection, but this is seldom of marked importance except where there has been faulty technic. A slight fever is not uncommon. Tragic results have probably developed most often from the accidental injection of the drug into a blood vessel. Mild Herxheimer reactions have been reported.

Some of the unpleasant symptoms may be prevented by preliminary dental care and by the subsequent attention to oral hygiene that should always be a part of the treatment of lues. In general it is claimed that bismuth is not hepatotoxic, is less damaging to the kidneys than mercury and that there are no general contra-indications to its use such as may be urged against the other specifics.

The most satisfactory site of injection is the upper outer quadrant of the gluteal region. The ordinary Luer type of syringe is used and a needle of about 22 gauge and 1½ to 2 inches in length. As there is usually some local discomfort that may persist for several days, it is well not only to alternate the two gluteal regions in making these injections, but not to use the same particular area more often than is necessary. The injections should be made well down into the muscle, avoiding both the subcutaneous fat and the periosteum. If the injection is made too near to a nerve trunk, persistent discomfort may result. I have twice produced a moderate sciatica that lasted two or three weeks, both times with an oil suspension. I tried a series of cases with an oil suspension on one side and an aqueous solution on the other, having the patients report from time to time as to which side gave them the least discomfort. The results were in favor the aqueous solution.

The usual precautions such as the use of sterile instruments and painting the site of injection with iodine should be employed. As the most unfavorable possibility is that of getting the drug into a vessel, precautions should be scrupulously observed to prevent this. After the needle has been introduced and before injection is begun, traction should be made upon the plunger to see if blood comes back into the syringe thus indicating puncture of a vessel. Another precaution of some value is to have about 0.2 cc. of air in the syringe so that this will be injected last and will clear the needle of bismuth; then when the needle is withdrawn, a trail of the drug will not be left. Gently massaging the area after injection will facilitate the distribution and therefore the absorption of the material.

The frequency of the injections will depend upon the intensiveness of the treatment that is being employed, the size of the patient, the dose and the particular preparation that is being used. The average dose should be enough to give about 1 grain (0.06 Gm.) of actual bismuth. From one to three injections a week are given, depending upon the factors previously stated. The average course of bismuth therapy is from one to two months. Where this drug is being

used in alternation with the arsphenamines or with mercury, as is so ably advocated, by Moore in the plan of continuous treatment, the usual period of each bismuth course is about six weeks.

CONCLUSIONS

1. A most careful general examination is essential before beginning the treatment of syphilis, as the findings may affect the entire plan of therapy.

2. Visceral involvement is always a possibility in early syphilis and a probability in late syphilis.

3. Treatment should include not only attention to the infection but also to the damaged structures.

4. Indications are that bismuth is less toxic than mercury and more effective.

5. Merely using an available preparation of bismuth does not necessarily mean effective bismuth therapy.

TREATMENT OF NEUROSYPHILIS*

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In a recent article, Dr. H. H. Hopkins reports that a statistical study indicates an increase in the number of cases of neurosyphilis. He offers various reasons as a possible explanation for this condition, particularly, methods of treatment employed in handling the primary syphilitic infections. Whether or not this reasoning be true, is not a question for consideration at this time, as this discussion is to be confined to treatment of the neuroluetic, but it is quite evident that his figures on the increased incidence of this type of difficulty cannot be disputed.

The average general practitioner encounters neurosyphilis in some one of its forms frequently. Apparently, his first tendency is to ignore its seriousness, give a few doses of some antiluetic agent, assure the patient that he will soon be better, or well, and when the most troublesome symptoms have cleared, to indicate to this patient that the awaited day has arrived and so pass on to the next treatment of some other case. Of course, the opposite of this is equally so, in that the average sufferer of neurosyphilis fails to accept the statement of his physician that his treatment should be continued from three to five years, and, instead, discontinues his treatment as soon as pain or the most prominent symptom has been relieved.

The possibility of neurosyphilis as a terminal condition must always be given grave consideration. Its prognosis must be considered from two angles: That of physical or mental incapacity, and life and death. Remembering that scar tissue cannot be eradicated from the nervous system, a guarded prognosis should be given in all cases.

Physicians should bear in mind that, although intensive therapy is essential in the treatment of neurosyphilis, conservatism is equally important and that as much harm can be done by therapy as by the disease itself. I cannot condone the giving of intensive antiluetic therapy, however, without good and sufficient indications of the presence of a luetic process or residual, merely for the sake of doing something for the patient, as was recently the procedure followed in a case of brain tumor.

May I suggest that you avoid fads, particularly those now in vogue for producing elevation of temperature, and confine your activities to the arsenicals, mercurials and bismuth preparations, leaving the other methods of treatment to someone better able to handle such procedures. I cannot too strongly remind you to remember always that you are treating an individual and not a positive Wassermann.

The therapeutic agents available for handling syphilitic infections of the central nervous systemare generally the same as those used in treating syphilitic manifestations in its other forms and elsewhere in the body. It is my contention, however, that a variation in the method of administering these agents and the use of tryparsamide as the arsenical of choice is productive of better results, in treating neurosyphilis. The variation referred to consists in the administration of either a bismuth or mercurial preparation during the same period intravenous arsenic is being given. It will be claimed that such combinations frequently produce severe systemic reactions and I must admit that I can corroborate such a statement.

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However, by developing a mild degree of saturation with either bismuth or mercury before the combined therapy is instituted, such occurrences can be avoided. This procedure was followed by my late colleague, Dr. Henry Daspit, and it was his contention that since adhering to such a technic his percentage of bad reactions associated with the intravenous administration of arsenicals had been practically nil.

Tryparsamide is given intravenously every fifth or seventh day, in courses of ten doses, a gram (15 grs.) to fifty pounds body weight, the average dose being three grams (45 grs.). No permanent improvement should be anticipated before the end of the third course, or thirtieth dose. Stokes has called to our attention the fact that only after a prolonged administration of this drug should permanent beneficial results be anticipated.

When the Department of Neuropsychiatry of Tulane University received the first supply of tryparsamide for clinical trial, it was our procedure to administer mercury salicilate with each dose of tryparsamide. We have, in the past few years, however, been using a bismuth preparation, thio-bismol. with the tryparsamide with the same beneficial results and I feel that either of these drugs can be used in conjunction with the intravenous administration of tryparsamide to produce the same good results. However, in all initial courses of treatment, I strictly adherred to the procedure of developing the mild degree of saturation with either the mercury or bismuth before combining them with the administration of tryparsamide.

The individual disease syndrome and individual patient, naturally, calls for a variation in the plan of therapy. In a young individual with a rapidly developing meningo-vascular syndrome, we believe that the iodides, mercurials, and arsphenamines should be tried first, to be followed later with mercury or bismuth and tryparsamide, if clinical evidence of improvement is not evident after six or eight weeks' treatment.

In old, weakened individuals, a similar procedure is sugested, with the exception that occasionally a two gram dose of tryparsamide is used instead of the average three gram dose and the interval between treatments is ten days to two weeks.

Before deciding upon any plan of treatment, it is necessary and important that all available information be gathered, including both physical and neurological examinations and spinal fluid survey. These factors combine to determine variations in the mode of treatment. The doses and intervals between administrations decided upon are varied by the age, weight, and physical condition of the patient. It has been my plan to determine carefully each patient's cardiorenal status and the condition of his optic mechanism. Throughout the period of active treatment, urinalyses are done each week and the eye grounds are checked at least every second week. Should the patient complain of any disturbance of vision or blurring, the treatment is immediately stopped and a definite recheck of the visual fields, in addition to examination of the fundi, is made, and with the resumption of therapy, the dosage is reduced, the interval between doses is lengthened, the dilution is increased, or all three such modifications are embodied in the treatment.

The spinal fluid findings are particularly of importance in outlining a plan of treatment. It has ben generally held that high cell counts indicate a more favorable response to treatment, but this cannot be depended upon to be universally true. As improvement progresses, the number of cells decrease and the gold curve shows a tendency to flatten out on the right. Subsequent fluid surveys having such changes and contrasted with the patient's clinical condition makes the further continuation of therapy a certainty and not merely guess work.

I do not recommend doses of tryparsamide smaller than two grams, even where eye complications are feared, but suggest under such conditions that the interval between doses be increased from weekly to ten days or two weeks and the dilution from ten cc. to fifteen or twenty cc. of distilled water.

In frank paretic, tabetic, or tabo-paretic syndromes, the usual procedure, after all essential information has been collected, particularly spinal fluid survey, is to administer three or four does of thio-bismol or mercury salicylate intra-gluteally and then to combine these injections with tryparsamide, administered intra-

venously at weekly intervals for ten weeks, assuring ourselves that during the first course of treatment the patient has received twleve to fourteen doses of bismuth or mercury and ten doses of tryparsamide. At the end of such a course, the patient is given a rest period for six to eight weeks, depending upon his clinical condition, and a second course of therapy similar to the first, except insofar as the preliminary doses of bismuth or mercury are concerned, is instituted. At the end of this second course, a rest period of twelve to fourteen weeks is given and a third course similar to the second is carried out. At the end of this third course, a spinal fluid recheck is made, contrasted with the original spinal fluid survey, and upon this comparison and an estimation of the patient's clinical condition, the next step of therapy depends.

No fixed program can be recommended from this point, each case presenting its own requirements. Where an advanced disease syndrome has been encountered, I would recommend a continuation of the same intensive courses outlined above, with longer rest periods between courses of active treatment.

In frank meningo-vascular pictures, the combined tryparsamide mercury or bismuth therapy is of distinct value but usually given after the iodides and mercury have been used with arsphenamine.

It can be accepted that tryparsamide therapy is of definite advantage to all cases of neurosyphilis. Cases invariably improve physically under this form of therapy, as evidenced by the gain in weight. The possibility of optic and auditory nerve damage, so widely advertised with the advent of this form of treatment, can be greatly discounted and Lillie of the Mayo Clinic states that more optic nerve damage results from syphilis than from any form of arsenical therapy. Ayer and his colleagues at Boston believe that the dministration of tryparsamide alone has been beneficial to large numbers of their cases, but the fact that this drug does not seem to have a particularly direct action on the spirochete makes me feel that the administration of mercury and bismuth in conjunction with the tryparsamide assures us of better results.

The method of treating neuroluetic syndromes outlined above should appeal to the average practitioner, particularly in that such forms of treatment are far less dangerous to the patient than either intra-spinous treatment or malaria innoculation and it must be admitted that, even in the hands of the most experienced, unfortunate results sometimes develop with both of these methods. It has been proven that as a rule those cases not responding to tryparsamide with bismuth or mercury rarely respond to malaria. I have at present in the clinic three cases presumably cured with malarial innoculations that are now being treated with tryparsamide.

The method of treatment I have suggested is simple, can be carried out by the patient's personal physician without undue disturbance of the patient's usual method of living, and it is economical.

In conclusion, may I remind you that you encounter cases of cerebro-spinal syphilis in your practice frequently, urge that you recognize them early, give them intensive courses of mercury or bismuth with tryparsamide, as I have outlined above, continue this intensive form of therapy for at least three courses before anticipating permanent improvement, keep them under treatment and observation for three or five years; and leave diathermy, malaria, rat-bite fever, intra-spinous, and other hazardous forms of treatment, for specially selected cases and then in the hands of someone who is equipped for these special forms of therapy.

BACTERIOPHAGY IN THE TREATMENT OF INFECTIONS OF THE SUPERFICIAL AND DEEP TISSUES,

With a Report of 200 Cases

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It is perhaps not entirely correct, though it is still not very far from the truth, to say that to most lay persons, as well as to a very

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fair number of physicians, the term bacteriophage brings just one thing to mind, the attempt of a blatant young doctor named Arrowsmith to conduct a scientific experiment during an epidemic in a certain tropical island, an attempt which ended, as did most of his other efforts, in fiasco. Bacteriophagy has been the subject of laboratory and clinical experiments for more than fifteen years, and while comparisons of individual worth are usually invidious and seldom very sensible, it can fairly be said that it represents one of the important medical discoveries of the twentieth century. Yet there is still among physicians a surprising degree of ignorance about it, the literature is still surprisingly barren of papers on the subject, except in its theoretic aspects, and the profession is still surprisingly unaware of what it is and what it can do.

That is certainly true of this community, which, from the standpoint of educational and hospital facilities, can justly be regarded as a medical center of some importance. Seven months ago, when we began our work with it, bacteriophage was regarded by the profession—by those of the profession who took the trouble to regard it as anything at all—as little more than a field for laboratory experiment. Indeed, one of the most interesting features of this investigation has been the almost childlike astonishment with which our results have been received, an astonishment, however, which has been quickly supplanted by cordial cooperation, as expressed by the reference of many patients to us.

We write these things with no sense of complacence, for we ourselves were then equally lacking in our comprehension of the possibilities of bacteriophage. This study began, as such studies frequently do, because in an idle moment of speculation it occurred to one of us (Boyce) that if the principle which made the Orr treatment of osteomyelitis successful was really bacteriophagy, then the same results might be secured, probably more speedily and undoubtedly more agreeably for all concerned, by the direct application of bacteriophage to the involved areas. We knew only casually of Albee's work along these lines, and we decided to try out the method for ourselves. Experience, someone has well said, is what you get when you are looking for something else, and that is precisely what happened to us: we undertook to treat osteomyelitis with bacteriophage, and our results were only fair; we extended the treatment to infections of the superficial and deep tissues, and our results were amazingly good.

Our work has been purely clinical. We have not concerned ourselves with the theoretic and scientific aspects of bacteriophage, which have been studied in endless detail by far better qualified workers than we are, for we see no point to meaningless repetition of experiments. For that matter, we share d'Herelle's opinion, that such work is of value only when it is interpreted with reservations and applied with safeguards. We acknowledge the very great worth of laboratory investigation, but there is, it seems to us, a limit to its usefulness, and that limit is often over-reached, not only by the so-called pure scientists, but also by the ultra-scientific clinicians, who do not comprehend the essential distinctions between what happens *in vitro* and what happens *in vivo*, who do not realize that between mice and men, between laboratory animals and human beings, there are certain fundamental differences which at least partially invalidate even the most honest of investigations by the most clinically-minded of laboratory men.

The facts of bacteriophagy are still under dispute in many quarters—indeed, the directors of the Institut Pasteur have just confirmed their own suspicions that it is a myth—and it is variously contended either that it acts by purely chemical means or that it brings about a species of foreign protein reaction. The majority of those who have worked with it, however, are willing to accept d'Herelle's conclusions, that the bacteriophage "corpuscle" is a living, ultramicroscopic virus, which is capable of being a parasite on bacteria and which dissolves and destroys them through the agency of a ferment which it secretes. In other words,

the principle upon which it operates, the destruction of organisms by other organisms, is excellently expressed in Dean Swift's well known lines (we quote the verse with less hesitation because we once heard it used in the course of a sermon by one of the most scholarly members of the Episcopal hierarchy)

> Big fleas have little fleas
> Upon their backs to bite 'em,
> And little fleas have lesser fleas,
> And so *ad infinitum.*

That is perhaps not a very dignified exposition of the subject, but it is an entirely accurate one. To express it more scientifically, albeit still crudely, the process involves the attraction of the bacteriophage to the bacterium by chemotaxis, its digestion of the membrane, its destruction of the bacterium by lysis, and its own prompt regeneration. This process can continue indefinitely, the potency of the bacteriophage increasing as successive regeneration occurs.

Space does not permit a full discussion of the subject, but it should be said that both experimentally and clinically certain other facts have been proved and can be accepted: that the action of bacteriophage is entirely selective, in that it does not affect living tissues and that it is harmless except to bacteria; that the bacterial cell is its sole culture medium, no matter what its potency may be; that it can act in infinitesimal quantities; that while its original specific action is upon specific strains of specific bacteria, it possesses the property of adaptability, and it sometimes can, with reservations, affect different strains of the same species, or even entirely different species. It is known also that it can withstand temperatures 5 to 15 degrees higher than can bacteria, and that it is most effective in an alkaline medium, its action being more or less inhibited by serum, pus, blood and bile, as well as by antiseptics.

In addition to its direct action in the destruction of bacteria, d'Herelle has been able to prove experimentally that bacteriophage has an indirect action, its ability to increase phagocytosis, his explanation being that the lysins secreted by the bacteriophage corpuscles during bacteriophagy are really opsonins. It is also quite possible that bacteriophage lyzed cultures can be regarded as supervaccines; because of the proteolysis of the bacteria lyzed such cultures are antigenic, and it is believed that the antibodies which such suspensions produce are produced more rapidly and have more effective powers of protection than the antibodies of ordinary bacterial vaccines. In the opinion of many observers this is its most potent effect.

If these theoretical considerations can be accepted, it is clear that we have in bacteriophage an agent whose therapeutic possibilities are obvious. Furthermore, its therapeutic application would seem justified for the reason that it is a true imitation of natural processes, at least if we grant d'Herelle's theory, that recovery is synonymous with the appearance of the principle of bacteriophage within the body, which is a complete reversal of the former belief that an individual recovers from his disease because he develops an immunity to it. If, as we say, the new theory be accepted, it would seem entirely logical to endeavor to enhance by artificial means the natural principle which is responsible for recovery, and that is the basis of the use of bacteriophage as a therapeutic agent. The single apparent disadvantage of the method is that its unwise and indiscriminate administration may bring about a condition of bacterial resistance to the bacteriophage and so terminate in an increased susceptibility of the host to infection, but this disadavantage can readily be eliminated by a judicious selection of cases.

d'Herelle's original work was done in such highly fatal diseases as bacillary dysentery, Asiatic cholera, primary pneumonic plague, and infantile diarrhea, and his results, which were literally miraculous, are a testimony to the efficacy of the method. Our own work has been confined to superficial and deep infections of various kinds. Larkum, in 1929, and Rice, in 1930, both made extensive reports of their results in these conditions, and the latter ran a series of control cases treated by nutrient broth, the results in no wise

paralleling the results he obtained by the use of bacteriophage. We mention this control series specifically, because it seems to us to settle the point recently raised by O. F. Lamson of Seattle, that nutrient broth does everything that bacteriophage is claimed to do. Perhaps, in the hands of other workers, it does, but no method that we ourselves have employed or that we have seen employed has given such results as we have obtained with bacteriophage from the point of view of promptness of relief and swiftness and permanence of cure.

We have previously reported 111 cases of carbuncles, furunculosis, abscesses, hand infections, osteomyelitis and miscellaneous infections treated by this method, and to this series we are now adding 89 other cases, bringing the total number so treated up to 200.

Theoretically, when a patient is seen with a certain condition the scientific method would be to determine the species and strain of bacteria present and to work out in the laboratory the bacteriophage which would act specifically upon the organism involved. On the other hand, it can be taken for granted in practice that in all but a few chronic cases or in a few acute cases of exceptional etiology, certain types of infection are caused by certain species of bacteria, and now that adequate commercial preparations are available, the cumbersome and time-consuming methods formerly necessary are neither essential nor practical. We have used in this study stock preparations in the form of lysate and jel kindly furnished to us by Eli Lilly and Company and have found them entirely satisfactory. Since the use of polyvalent suspensions is obviously more practical than the use of univalent preparations when an elaborate routine of laboratory tests is not carried out, Staphylo-lysate and Staphylo-jel are made up in the proportion of 75 per cent bacteriophage for staphylococci and 25 per cent for streptococci, while the Strepto-lysate and Strepto-jel are made up in the reverse proportions. The Colo-lysate and Colo-jel are effective against staphylococci, streptococci, B. coli and pneumococci.

Certain general principles must be borne in mind for the clinical use of bacteriophage. It must come into direct contact with the infected tissues, and external application, direct injection and circuminjection are employed according to the type of lesion to be dealt with. In direct injections we are careful not to increase tension within a closed cavity, and we therefore always aspirate such pus as may be present before introducing the bacteriophage. The closed treatment of pus we have found to be perfectly safe; indeed, we agree with Rice, that when it is possible, it is superior to the open method because of the absence of secondary infections.

Dosage we have not found to be a matter of great importance. If the results are not prompt, we increase it, hoping that an increased amount of bacteriophage may compensate for a possible lack of potency, but when the results are satisfactory we continue with the original dose. We have given as many as 7 successive injections, in doses ranging from 1/2 to 5 c. c., and have found, as did d'Herelle, that large doses were without harmful effects. The application of the jelly to open wounds is far more satisfactory than the older method of using moist dressings or of injecting fluid material into open cavities in which it could not be expected to remain, but it is our impression that the lysate is rather more effective. In the single case in which we used the intravenous route, we bore in mind d'Herelle's warning, that bacteriophage must be used in adequate dilution (1 to 2 per cent in quantities of 500 c. c. of normal saline solution) and should be administered very slowly, in order to avoid the risk of anaphylactic shock, and we had no reaction.

We have not always given daily treatments, but we have always insisted upon daily visits during the first few days. While we grant that the idea is purely speculative, it is our theory that the marked liquefaction which is the first result of the application is likely to carry off with it potent bacteriophage, for which more bacteriophage must

be substituted. d'Herelle, on the other hand, believes that bacteriophagy produces by-products which lessen the effectiveness of the bacteriophage which has been introduced.

Following the injection there is usually a burning pain, probably to be attributed to the bacteriophage itself, though perhaps partly, at least, to be attributed to the technique of injection and the inflamed state of the parts. The pain is always transient, and seldom lasts more than a few minutes. In no case was there any constitutional reaction of moment, and in most of the cases there was none at all. In no instance did the pain of the original lesion last more than 48 hours after the first treatment and in the majority of cases it had disappeared within 24 hours, while a few of the patients reported complete relief within 2 to 5 hours of the injection. The promptness of relief, particularly in such conditions as carbuncles, ischiorectal and perirectal abscesses and hand infections, in which the pain is frequently excruciating, is one of the results of this treatment that cannot be set down in statistical tables. Furthermore, the relief was too unanimous and too permanent to be explained on the basis of suggestion or psychologic effect.

The physical phenomena are rather generally the same. Within the first 24 hours induration is lessened and there is a marked liquefaction of necrotic tissue, so that the aspiration of pus in more or less large quantities is frequently possible when the patient is seen for the second time. The progress toward cure is then rapid and characteristic. Soreness and induration disappear, sloughs separate, leaving clean, granulating surfaces, and the patient is usually clinically well within a week. The rapidity of cure is particularly notable in such conditions as ischiorectal and perirectal abscesses and carbuncles, in which treatment by other methods usually means a prolonged convalescence, while in carbuncles the minimum loss of skin and the minimum scar formation and deformity are almost incredible.

We do not exaggerate when we say that deep-seated lesions treated by this method usually localize and point within a very much shorter time than by any other method of treatment or by natural processes, and convalescence is usually very much smoother and speedier than under any other form of therapy with which we are familiar. Our results are additionally remarkable in that, with few exceptions, all of these patients came from the wards and clinics of Charity Hospital and many of them were negroes, so that we had against us malnutrition, lack of cleanliness, and disregard of the simplest laws of hygiene, as well as the limited cooperation always evinced by persons of limited intelligence. Furthermore, the majority of these patients had previously been treated by other methods, with poor results, and the results which were secured by bacteriophage can be taken at their face value, for it succeeded where other forms of therapy had failed.

CASE REPORTS

Carbuncles—27 cases; no failures; all but 2 patients discharged before the tenth day.

Furunculosis—13 cases; no failures; all patients discharged within a week.

Abscesses—54 cases; no failures; all patients discharged within a week.

Wound infections—46 cases; 2 failures; in none of the other cases were more than two applications of the bacteriophage necessary.

Hand infections—30 cases; 1 failure; all other patients discharged within a week.

Osteomyelities—10 cases; all the patients were benefited by a decrease of drainage and an elimination of the foul odor, while the pain and discomfort were more or less markedly relieved, but in only 2 cases was bone regeneration at all striking.

Miscellaneous cases—20, including: infected varicose ulcers—3 cases; axillary adenitis—3 cases; inguinal adenitis—3 cases; infected sebaceous cysts—4 cases; and 1 case each of: cellulitis of the forearm; infected lymph nodes after mammectomy for advanced carcinoma of the breast, with metastasis and ulceration; infected pilonidal cyst; parotitis; phlegmon of the chin; sinus tract following appendectomy 2 years before; and cavernous sinus thrombosis. In the latter case death occurred.

A very important consideration in the treatment of these patients is that all of them, except those already hospitalized when we were consulted, were ambulatory, and even those in the hospital were usually discharged to the clinic within a few days after treatment was begun. Under other forms of

treatment many of them would have been confined to their homes or kept in the hospital for more or less long periods of time, and the economic advantages of this new method to both patient and institution are apparent. It should also be noted that some of the conditions treated, especially carbuncles, certain types of furunculosis, perirectal abscesses, etc., are particularly resistant to treatment, and that all of them responded very promptly to the application of bacteriophage.

The abscess group includes 15 cases of ischiorectal and perirectal abscess, and the same number of breast abscesses, and in no case has there been a recurrence. In the 2 infected wounds in which the treatment failed, some comment is necessary. The first was a postoperative infection of no very great severity, for which we probably did not employ the proper bacteriophage; no other reason for failure was apparent. The second was a secondary infection following amputation of the upper arm for a gas bacillus infection, and we knew, at the time we applied the Staphylo-lysate, that we were using the wrong bacteriophage; our excuse, though we grant that it does not justify our course, is that we did not have the proper preparation available, and we were prepared for the failure which followed. The hand infections in which we succeeded include 21 cases of staphylococcal infection of the thenar or palmar spaces, or both, and 8 cases of bone felon. The patient in whom we failed had an extremely serious infection which had been neglected and badly treated for 3 weeks before her admission; the extent of the infection when she was first seen made it impossible to bring the phage into proper contact with all the affected areas without extensive surgical incision, and amputation was finally necessary. Better results could undoubtedly be achieved in acute cases of osteomyelitis than we achieved in the chronic cases we handled, but we have not yet had an opportunity to test this point.

Certain illustrative cases are herewith appended:

Case 1. White female, aged 65 years, seen in consultation on the fiftieth day of her illness, at which time her blood sugar was 350 mg. The carbuncle, which involved the entire right half of the neck, was at least 4 by 6 inches in size, and the surgical measures considered inevitable by the attending surgeon were postponed for 48 hours to permit a test of bacteriophage. By the end of that time the necessity for operation had disappeared, for the response to circuminjection and direct injection of Staphylo-lysate was astonishing. The patient was discharged from the hospital on the fourteenth day, with a crater less than 1 inch by granulations, and the enormous induration of the ¾ inch in size; the base was covered with healthy neck had practically disappeared, although naturally the discoloration still persisted. One of the remarkable features of this case was the prompt reduction of the blood sugar to 200 mg. and the prompt improvement in the constitutional condition as soon as treatment by bacteriophage was begun, in spite of the fact that through an unfortunate misunderstanding no anti-diabetic measures were undertaken.

Case 2. Colored female, aged 60 years, exhibiting a left ischio-rectal abscess, the induration of which covered an area 3 by 5 inches. The pain, which was extreme, disappeared within 24 hours after an injection of 1 c. c. of Colo-lysate. On the second day 5 c. c. of liquid pus was aspirated and the same amount of Colo-lysate was injected. On the third day the needle puncture was enlarged with a single stab of the knife, without anesthesia, and 75 c. c. of pus was removed, the large indurated area having been converted, within the space of 72 hours, into a definitely localized abscess. Recovery was complete within a week.

Case 3. A colored female, aged 60 years, eviscerated herself on the tenth day after an exploration for inoperable carcinoma of the sigmoid. She was resutured at once, and within a week she developed a wound infection with very severe local and constitutional manifestations. The condition, for all practical purposes, was a huge subcutaneous abscess. The upper and lower sutures were removed, the pus was evacuated by gentle pressure, and Colo-jel was injected lavishly. Without further treatment and within 3 days both local and constitutional evidences of infection had entirely disappeared, and the patient went on to recovery with a scar that was at least superficially strong.

Case 4. A white female, aged 65 years, was subjected to a rapid circular amputation for a violent infection above the knee of undetermined origin. Amputation was done as high as possible, but even then was done through infected areas. The stump was left wide open for drainage. After operation the infection continued unabated, and the patient's life was despaired of; she did not respond to any measures, including two transfusions. On the sixth day Colo-Jel was applied to the stump; for the next 24 hours the discharge was so profuse that her bed could not be kept dry, but within 48 hours it had practically ceased, and within 72 hours the stump was so clean that closure could be considered.

Case 5. Colored female, aged 28 years, with an infected pilonidal cyst. The infection involved an area of the gluteal region about 5 inches in diameter, in the center of which was a draining sinus, and the odor was intolerably foul. Two applications of Colo-jel brought about prompt liquefaction of the necrotic tissue, followed, 48 hours after treatment was begun, by the discharge

of a slough at least 2 inches in diameter, which included the entire cyst wall. Healing was prompt and the patient was dicharged on the seventh day.

On these 200 cases, then, cure was complete and usually very prompt in all but 10 cases of osteomyelitis, 1 case of parotitis, 1 hand infection, 2 infected wounds, and 1 case of cavernous sinus thrombosis, and only in the last 4 cases was failure absolute; all the others showed some degree of improvement. The case of cavernous sinus thrombosis must be mentioned in some detail:

The patient, a colored female 6 years old, was admitted to the hospital in convulsions, with a temperature of 105° F. She exhibited at the time a bilateral edema of the periorbital soft tissues, and a bilateral bulging of the eyes. The story was that 72 hours before she had picked a furuncle on the ridge of the nose. Strepto-lysate and Staphylolysate were used intravenously (2 c. c. per 100 c. c. of normal saline solution), in combination with the routine measures of sedatives, continuous compresses, cold sponges, forced fluids, etc., and she exhibited a temporary and rather striking improvement. There was positively no reaction of any sort from the use of the bacteriophage. Death occurred on the fourth day after admission, however, and autopsy showed a bilateral suppurative thrombosis of the cavernous sinuses. Even though this case ended in failure, it was felt by the members of the staff who had seen the patient that the bacteriophage had not been wholly ineffective in arresting the fatal course of the disease, and perhaps would have succeeded in saving the child had she been seen a few hours sooner.

We have been hesitant in reporting our work with bacteriophage because we admit that our results do sound incredibly good, and we have no desire to seem to be swept away on a tide of enthusiasm that has no foundation in fact. We believe, however, that the specimen cases we have quoted, which could be duplicated many times over from our files, bear out our contention that there is something in this method that cannot be explained away by charges of commercial exploitation or pseudo-scientific investigation. As we have already emphasized, the percentage of cures we obtained, important as that phase of the question is, is not to be compared to the promptness and completeness of the relief we achieved. The immediate cessation of pain and discomfort, the elimination of surgical measures and prolonged drainage, are considerations which statistical tables do not take into account. Furthermore, regardless of the cost of bacteriophage, it is trifling in comparison with the cost of older methods of treatment, and that is no small matter in these days of economic stress for individuals and institutions; any method is surely worthy of trial which lessens the financial strain on patients and hospitals, particularly when, if it should fail, no harm at all is done. The after-course, which is the surest test of the value of any method, has conclusively proved to us in this series of cases the value of bacteriophage in infections of the superficial and deep tissues, and we echo Howard Kelly in his shrewd observation that what patients want is to be cured, whether or not the cure has a basis of logic behind it.

SUMMARY

1. If the investigations of d'Herelle and his followers are to be accepted, bacteriophage is a therapeutic agent with bactericidal properties beyond those of any other agent known, and with a power of selection that makes it harmless to normal tissues.

2. The clinical application of bacteriophagy is discussed.

3. 200 cases are reported of infections of the superficial and deep tissues treated by this method.

4. It is concluded that this method, when it is properly applied, is far superior to other methods now in use in the treatment of these infections. In particular, the patient is spared much pain and disability, and the hospital is relieved of a decided financial burden.

Note. We desire to express our appreciation to Eli Lilly and Company for their generous cooperation with us in this work and for the freedom with which we have been permitted to conduct the investigation.

We are grateful also to Dr. Urban Maes, Director of the Department of Surgery in the Louisiana State University Medical Center, for the privilege of treating these patients on his service in the wards and clinics of Charity Hospital, and to the other members of the Charity Hospital Staff who referred patients to us in consultation.

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CONVALESCENT SERUM IN THE PREVENTION AND ATTENUATION OF MEASLES*

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Measles is one of the most prevalent of the diseases of infancy and early childhood and one of the two most fatal of the communicable diseases. In a review of the mortality and morbidity reports for the State of Mississippi, it is interesting to note that the peak of the measles epidemics has occurred every five years. The last high peak prior to this year was in 1928, when 35,276 cases occurred with 233 deaths, 166 of which occurred in patients four years of age and under. The high mortality associated with measles in infancy and early childhood, urges the use of some procedure that will either prevent or modify this disease.

Although attempts to immunize children against measles by the injection of human blood are reported[1] as having been done nearly two hundred years ago by Home of Scotland, it is only recently that much work has been done along this line. Within the last ten years there have been a number of excellent papers on the use of whole adult blood, whole convalescent blood, serum and plasma, for a bibliography of which I will refer you to that of Zingher[2]. In comparing the relative values of convalescent and immune (adult) serum, Morales and Mandry[3] report the protection of 85 per cent of 120 measles contacts injected with convalescent serum, while only 57.8 per cent of 393 measles contacts injected with adult immune serum were protected. The recent work of Tunnicliff[4] and her associates gives hope of a biological serum which can be universally used in the near future, but until that time the use of convalescent serum is our best weapon. The serum as prepared by Tunnicliff and her associates is goat serum, and, like all animal sera, occasional reactions have been reported[5] and some complications. Convalescent serum has been found to be the most potent and effective agent in preventing measles, and in producing an attenuated disease, but it is useless as a cure once the disease is established.

From experimental data it has been shown that the titer of immune bodies in the serum is highest about the tenth day after defervescence and from then on slowly decreases, therefore, we obtained serum from convalescent cases from the seventh to twenty-first day after defervesence. Only healthy donors who were free of any other disease were used. Late in the epidemic, serum from a patient who had an attenuated disease was used and found to be equally as effective in preventing measles. The method of preparation was to draw the blood under aseptic conditions into 20 cc. test tubes, incubate at 37° C for four hours, allow the clot to retract for eighteen to twenty-four hours, centrifuge, and remove the serum. Wassermann, Kline, and sterility test were done upon each serum and if found negative the serum was put up in 10 and 20 cc. vials after .5 per cent phenol had been added for a preservative. These procedures are simple and can be carried out in almost any laboratory. When prepared in this way convalescent

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serum maintains its potency for 6 to 12 months.

The concensus of opinion of the investigators seems to be that 4 to 10 cc. of convalescent serum, varied according to age and weight, injected intra-muscularly into children who have been exposed up to four days, will in 85 to 95 per cent of the cases confer a passive immunity lasting six weeks to six months; when injected into children exposed four to eight days, it produces an attenuated disease in which practically no complications occur; and when injected after the ninth day of exposure, does not modify the course of the disease. The use of adult or parents serum, if the adult had measles in childhood, is advisable where fresh convalescents serum cannot be obtained, but it does not seem to be as potent. The use of whole blood is not widely advocated, due to the large amount required and the possibility of anaphylaxis when the bloods have not been typed or matched.

During the present epidemic of measles we have given convalescent serum to 253 children in institutions and private practice, with no reactions and no complications. Our experience in the use of convalescent serum in 253 cases comes from the private and institutional practice of my father, Dr. H. F. Garrison, Sr., and myself. Our institutional practice has afforded us a most excellent opportunity to study more accurately the advantages of convalescent serum in the prevention and attenuation of measles. We have obtained accurate records in 231 of these cases and have studied them both from the standpoint of prevention and attenuation. Two hundred and thirty-one of these cases are tabulated below.

In Table I, are shown 48 cases injected with convalescent serum on or before the fourth days of exposure. Ten cases were injected before any exposure and not one developed measles. Sixteen cases were injected on the second and third days after exposure, 14 of them were protected from measles, 2 developed very mild cases of measles, with an average duration of temperature 2 days, the highest point being 101°. Twenty-two cases were injected on the fourth day, 20 of which did not develop measles, 2 did develop measles with an average duration of temperature 1.5 days, the highest point being 101.4°. In the total of 48 cases injected on or before the fourth days of exposure, 44 were protected from measles and 4 developed attenuated cases.

Table I. Cases injected with convalescent serum on or before the fourth day of exposure.

No. of cases injected	Day after exposure given	No. of cases not developing measles	No. of cases developing measles	Temperature: Average No. days duration	Temperature: Average height
10	Before	10	0	0	0
16	2nd & 3rd	14	2	2	101
22	4th day	20	2	1.5	101.4
Total 48	Before exposure through fourth day	44	4	1.7	101.2

Table II. Cases injected with convalescent serum on the fifth through the eighth day of exposure.

No. of cases injected	Day after exposure given	No. of cases not developing measles	No. of cases developing measles	Temperature: Average No. days duration	Temperature: Average height
44	5th day	37	7	2	101.6
10	6th day	4	6	2	102.8
3	7th day	0	3	2	101
2	8th day	0	2	3	103.2
Total 59	5th through 8th day inclusive	41	18	2.2	102.1

In Table II, there are recorded 59 cases injected on the fifth through the eighth day of exposure. Of the 44 cases injected on the fifth day, 37 did not develop measles, 7 did develop measles with an average duration of temperature of two days, the highest point being 101.6°. Of the 10 cases injected on the sixth day, 4 did not develop measles, 6 did develop measles with an average duration of temperature of two days, the highest point

being 102.8°. Of the 3 cases injected on the seventh day of exposure all developed measles, the average duration of temperature being two days and its heighth 101°. Of the two cases injected on the eighth day of exposure, both developed measles, the average duration of temperature being three days and its highest point 103.2°. Of the total number of 59 cases injected from the fifth through the eighth days of exposure, 39 did not develop measles, 20 cases did develop measles with temperature above normal, an average of 2.2 days, the average highest point being 102.1°. These cases were all of mild to moderate severity, there were no complications, and many of the children were kept in bed with great difficulty. The rash varied from just a few spots on the trunk and neck to a heavy rash, but no case had a haemorrhagic rash. Kopliks spots were present in only seven cases.

Table III. Cases injected with convalescent se- on the ninth through the twelfth day of exposure.

No. of cases injected	Day after exposure given	No. of cases not developing measles	No. of cases developing measles	Temperature	
				Average No. days duration	Average height
	9th to 12th day inclusive	0	17	4.2	1.03.1

In Table III, there are shown 17 cases injected upon the ninth to twelfth day of exposure, and all of them developed measles with an average duration of the temperature being 4.2 days and its average highest point 103.1°. No complications occurred in these cases, but on the whole, they were as ill as the cases not receiving any serum.

Table IV. Cases of measles not receiving serum.

No. of cases	Temperature		No. cases severely ill	No. cases having complications
	Average No. days duration	Average height		
36	5.3	1.03.1	17	11

In Table IV, there are shown 36 cases of measles not receiving any serum, in which the average highest point of the temperature was 103.1°, and the duration of temperature 5.3 days. Seventeen of these cases were severely ill and 11 of them had some complications, 3 of which were broncho-pneumonia. In comparing the cases recorded in tables III and IV, it is seen that in so far as the acute illness of measles *per se* is concerned, those cases receiving serum after the eighth day of exposure were not benefitted but they did not develop any complications, and the average duration of temperature was one day less. However, it is the concensus of opinion that the injection of serum after the eighth day of exposure does little or no good in modifying this disease and these findings support that opinion.

CONCLUSIONS

The injection of 4cc. of convalescent serum into a child 3 years of age and under, with a proportionate increase in the amount up to 10 cc. for children 14 years of age, who have been exposed to measles less than 5 days will usually confer a passive immunity lasting 3 weeks or more. If it does not prevent the infection it modifies the disease so that it is very mild and no complications occur. This type of passive immunity is desirable in institutions where the crowded conditions would make complications more prevalent. It is also desirable in very young children and children having any other illness, due to the high mortality of measles under these circumstances. Of 48 cases injected before the 5th day of exposure, 44 were protected from measles and the other 4 had very mild cases.

The attenuated form of measles is most desirable in private practice. It is best obtained by injecting the convalescent serum on the fifth to ninth day after exposure. In the attenuated form of measles there is usually no period of invasion, the rash and temperature occurring simultaneously. Kopliks spots are present in only a small number of the cases. The rash is less pronounced, sometimes amounting to only a few scattered areas over the trunk. The duration of fever is shortened and remains lower. The patient

often does not feel ill and complications are almost unheard of. During the present epidemic of measles, we have given convalescent serum to 253 children in institutions and private practice, with no reactions and no complications. Of 59 cases injected between the 5th to 9th day of exposure, 18 had an attenuated form of measles, and 41 did not develop measles. Of this 41 cases not developing measles, 37 were injected on the fifth day of exposure.

The use of convalescent serum in the prevention and attenuation of measles is valuable and practical, the main drawback to its widespread use being the lack of a constant supply. From the public health standpoint, I would advocate that local health boards and hospitals interested in children make a special effort to collect this serum and keep it available to the physician at a reasonable price. When it is not available, immune adult serum may be used but it is not as potent or effective.

I wish to express my appreciation to Drs. J. H. Stone, M. L. Batson, and Mr. C. A. Palmerlee for their kind assistance and cooperation given me in this work.

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DISCUSSION

Dr. John K. Bullock (Jackson): We are all familiar with the fact that newly born infants have a high degree of resistance to certain of the communicable diseases namely, diphtheria, scarlet fever, poliomyelitis and measles, with no immunity to certain other of the communicable diseases such as chickenpox, smallpox, and whooping cough. This immunity on the part of the newly born infant is of a passive type which no doubt is derived from the mother through the transmission of antibodies. Both active and passive immunization against measles has been attempted in several different ways. The active immunization against measles by the use of toxin-antitoxin has not been satisfactory. The method of Herman, namely, the transfer of nasal secretions from a child with active measles to a well child has also failed to prove satisfactory. But the use of blood and serum from recent convalescent cases and even from individuals that have had the disease at some earlier period in life, is proving to be most satisfactory as we have just been able to see from this excellent paper by Dr. Garrison. The passive immunization against measles has also been attempted by different methods namely, the use of placental extracts, the use of anti-measles diplococcus serum and with the use of whole blood or serum injected within the first five days of the incubation period. Of these methods, the use of blood and serum, of course, has proven to be of great value. The dosage and time of administration of serum for passive immunization is very well standardized but for active immunization, we need more data on the quantity of serum and time at which it should be given. We know that each child varies in its susceptibility to measles and we also know that the sera from different individuals varies in anti-body concentration. These two variable factors explain the difficulty of standardization in active immunization.

Less than ten per cent of children reach adult life without having measles and certain of these develop it in later life, at an age when the combative powers are less than they were when younger. Since measles is more severe in adults than in children of school age, it is advisable for each individual to have an attenuated form of the disease when a child. Since the disease is also more severe in very young children, it is important that every child under three years of age should have protection against the disease.

Dr. W. H. Scudder (Mayersville): May I ask if one can have measles more than once?

Dr. M. L. Batson (Jackson): I cannot refrain from saying a few words in behalf of this splendid paper. I think it is timely, and I think Dr. Garrison has covered the subject thoroughly. I believe this is one of the best papers we have had during this session, and I very much appreciate the manner in which he has presented it.

It was my privilege to observe a number of cases of measles which were treated by Dr. Garrison in the School for the Blind. All those treated with a serum were not sick enough to go to bed. As a matter of precaution we kept them in bed for a day or two, and only one out of the number treated had a temperature above 101°. Some of the children that were effected will never know that they had measles, as it was so light.

I desire to say that this is an excellent treatment. There were no reactions following the injection, it did not cause any soreness of the muscles, and it lessened the seriousness of measles

to where there is no further dread of the disease. They do not have sore throat, coryza and running of the nose and eyes that one has with an ordinary case of measles.

To me, this is a very splendid treatment, and I want to endorse everything the doctor has to say about it.

Dr. Joe Green (Laurel): Please tell us how long this immunization lasts.

Dr. F. M. Smith (Vicksburg): I am interested in a general way in this subject. Yet it seems to me that the paper deals entirely with the treatment of measles. It does not offer much from a public health standpoint or preventive medicine proper. Therefore, I do not see much promise to us, (public health workers.) It seems that the serum when used as a prophylactic produces a passive immunity and not an active immunity—that it is taking the protective agents—anti-bodies—from the body of the convalescent that has created them, and puts them into the supposedly susceptible child to tide that child over the present attack, to make it milder or to prevent it from having it for a time, but the protection doesn't last for a great while. One or two other thoughts come to my mind. I do not want to be a "doubting Thomas" but I am interested, and I am thinking along the lines that Dr. Evans led us in his talk the other night about that zero point that we are reaching in all communicable diseases. Possible factors influencing this decline in severity and incidence are the virulence of the organism, the type of measles or communicable disease that we are having. Another thought comes to my mind—in 253 cases reported, mostly institutional cases, I assume that you definitely determined as far as possible how many of these had had an attack of measles, red or French type, previously, and that you excluded these, else the value of your prophylactic record could be justly questioned. Permit me to call your attention to another fact apparent to me. We are having a milder type of French or red measles in the present epidemic than we have previously had. In Vicksburg I think I can safely say we had approximately 400 reported cases and as far as I can determine we did not have more than 10 or 12 that had any complications and by far the majority of the cases had no medical attendant. I would go to home after home as a health officer where they would report three, four, or five children that had measles, and they were all up and out and had developed no complication and had not even been under the care of a doctor. The health officer can let measles patients go back into school without danger to others much earlier than it is safe for the patient. The period of communicability is from four days before to five days after the appearance of the rash.

In conclusion I am just wondering if we have thought all the way through—do we observe in those that did take the convalescent blood serum a much milder degree of infection than in those that did not take it who may have lived in an adjacent community or town?

Dr. N. C. Womack (Jackson): I think Dr. Garrison has brought us a paper that will not be surpassed by any paper read before this Association. What happens in the prevention or attenuation of measles happens and is happening and is being practiced now as far as infantile paralysis is concerned. The theory is not a theory but is a fact. Whooping cough is a disease limited to one attack. I confidently believe that if we can get the date of exposure definitely settled and wait a certain period of time and give blood from a person who has had whooping cough recently or in sufficient quantities that we will be able to do the same for whooping cough that we are doing for measles. In 1930, 8000 children in the United States died as the result of complications of measles—that answers the doctor's question. About 300 died as the direct result of measles. The morbidity is great, and the suffering is great and the universality of the disease is such that if as many as ten children get sick it is quite an economic problem, so I want to congratulate Dr. Garrison on the presentation of this paper. He spoke of one of the difficulties being the lack of serum. I believe the time will come when it will be available. Now I want to make this suggestion to you—in those cases where it is not available, or you so desire, if you will wait until the fourth or fifth day and use mother's blood or father's blood, sodium citrate with a syringe using twice the quantity you would use and don't put it in the muscles, put it in the fatty tissue, insert a little novacaine and you will accomplish quite the same result. If your home is in a rural community where one has measles and there are five or six more, explain to the mother what it means—why she has had measles and didn't have it again, that her blood possesses immunity and that you can take her blood and give it to the baby, you can rest assured that you will have when the disease erupts, one or two days of a mild eruption, or low grade fever and the baby is soon out. If the mother hadn't had measles for 30 years, and the child is eight or ten years old, give him a little more. You ought not to put it in a vein but as long as you put it in the tissues you won't have any trouble. It doesn't have to be typed—it is easy, it is rational, and it will get the results. As I say Dr. Garrison has presented us with what I believe to be a paper as valuable as any we will have presented this year.

Dr. A. E. Keller (Nashville): I would like to

congratulate Doctor Garrison on the excellent work that he has done in regard to the use of convalescent measles serum. Doctor Garrison took two groups of children exposed to measles in an institution. He gave convalescent serum to one group and used the other group of children as controls. He was able to show that the children who did not receive convalescent serum had a much more severe illness than the group which received convalescent serum but developed attenuated measles.

The indications which Doctor Garrison enumerated for the use of convalescent serum are accurate. Emphasis should be placed on the use of convalescent measles serum first in children in institutions because it is a well known fact that the mortality rate, resulting especially from complications following measles, in children in institutions is much higher than in children not in institutions. Therefore, the use of this agent in institutions is a definite indication.

One should also emphasize the use of convalescent measles serum in children who are in poor physical condition, who have tuberculosis, and who are under the age of five. Often times children who have measles and a latent focus of tuberculosis are likely to have the tuberculous focus awakened and the patient die of tuberculosis following measles. If it is possible to prevent infection with measles until after a child has passed the age of five years it will be possible to prevent a great many more deaths which would occur as a result of measles because we know that most of the complications of this disease occur before the age of five years.

The therapeutic use of convalescent serum has not been shown to have any effect on the disease after the fever has started. Therefore, convalescent measles serum is only efficacious when given soon after exposure and under these conditions one can expect to prevent the attack or at least to attenuate the disease. The question might be raised as to whether or not it is dangerous to use convalescent measles serum. I would like to emphasize the fact that there is no need to fear antiphylaxis following the injection of human serum because in this case one is injecting an homologous protein.

Whole blood from adults who have had measles may be used when convalescent serum is not available. In using adult whole blood much larger doses should be given intramuscularly and this procedure will occasionally bridge the gap in those instances when convalescent serum is not available.

Dr. H. F. Garrison, Sr. (Jackson): The use of convalescent serum has many advantages over that of whole blood as all the doctors have agreed. I also agree with them with reference to the use of whole blood where it is not feasible or material available to get the use of a laboratory to have the blood separated and get the serum, then you may use your whole blood, but if it is possible to get your serum separated it is certainly much better to use serum always. It is a very simple matter to separate the blood and to use just the serum. You have only to use a comparatively small amount of serum and in that way you have a good deal more advantage. Of course, you have the advantage of it being more likely to prevent or attenuate the disease.

Dr. Keller mentioned a matter, and I regret very much that I was not here to hear his paper on the control of tuberculosis. I read a similar paper several years ago before this Association on the control of tuberculosis in children, and I think right there is one of the biggest advantages in the use of convalescent serum. Take the case that my friend Joe Green mentioned this morning—the children who are going around and you know they are contact cases. By the way that is the most serious phase of this question—is contact; those are the ones your serum will do the most good in. Take a child who has tuberculosis—its grandmother, as Dr. Womack suggested, or some of the relatives have tuberculosis and they are continually in their presence—those are the kinds of cases you want to prevent measles in, because if you give a child like that a good case of measles you are likely to flare up a tubercular condition that may be hard to check.

We have shown in this series of cases that one of the biggest advantages is in the attenuation. In that way you lessen the complications and the severity of the disease. Dr. Smith mentioned the cases over at Vicksburg. I think Dr. Womack and the other men here will bear me out that his experience in Vicksburg is not that of ours. This present epidemic we have had here is about as bad as I have seen in many years, and the complications were many and severe. We had more measles in Jackson, with a temperature ranging from 104 to 106 than we ever did before—just bad cases, and we had many complications—ears, eyes, throat conditions, mastoids and pneumonia, I tell you it is an advantage—a great big advantage. If you have the use of a laboratory where you can get your blood separated, always do it, but, of course, if you cannot, in an emergency, whole blood will be permissable, but we warn you on the indiscriminate use of whole blood. Don't take that lightly. If you can separate it, then that is probably permissable.

I have enjoyed the discussion of this series of cases here because it shows that men are interested in it, and we are going to get co-operation.

Another point with reference to the giving of the serum. You need not be afraid to give serum in all cases. We don't have the slightest reaction from it. There was not the slightest reaction in any in this whole series—they did not even have a red spot where it was injected, and any good laboratory can separate and give you the serum in just a little while. It takes only 24 hours to get it, or you may even draw the blood and have it separated immediately, but it is best to allow more time if possible.

I thank you all for the discussion and interest in this piece of work. The use of convalescent measles serum has certainly been a very pleasing revelation to us. We feel that it can be used in cases where it may mean the saving of life, and may in the future be useful in a public health way.

Dr. R. N. Whitfield (Florence): I was considerably interested in Dr. Garrison's experiments and would like to mention the results obtained in my "institution". I have my official position with the state, and I am also at the head of a "private institution for children". I came back home from a trip out of the state on about the last day in January, and I had a girl piled up in bed. My wife said "Well, Emily has got the measles." She is about 9 or 10 years old. I had a boy there that hadn't had the measles, and he was piled up the next day too. They caught it at school. Well then I had three babies that I knew I was going to have some sort of a time with. You know a fellow can get jumpy late in life, and I knew what was coming. I was going to have three babies down with temperatures running around 104° and 106° possibly a few convulsions, maybe a case of pneumonia, and possibly a little death, so I was worried. I happened to mention the matter to Dr. Garrison, Sr., and he called my attention to this preventive measure that has just been used and in fact I had a bulletin from some state sometime back about it, so they gave me a little bit of encouragement and we talked it over and I began to look around then for somebody that had had the measles that I could induce to give me a little blood. I found out one lady over here in Jackson had had measles, and I called her up—her husband was without an occupation, and she was a little doubtful about furnishing me blood. I told her I would give her $3.00 if she would help me out. She talked with her husband—I thought her husband would be willing, so she finally called me and said her husband didn't seem to be so agreeable to this matter; anyhow she asked me "did you mean $3.00 for all the blood, or $3.00 an ounce"; so finally I found an elegant little lady working for the Hinds County Unit here who had had the measles, so I called her and asked her about it. She said "Yes, I will be glad to do it" She went out to the hospital and gave sufficient blood; they separated it and in three or four hours Dr. Garrison, Jr., and I were on the way out to my "institution", and those three little babies were injected; they didn't even cry, and I had a friend out there who was scared to death—he was always bringing his child to the hospital over here, so I suggested we vaccinate that child, and I made even a better friend out of that man. Well, anyhow in a few days—about the usual time—maybe 14 days after the first exposure to this girl, these children developed just enough temperature to know they were sick, and they had just a little eruption, but they never did go to bed, and as to that boy and girl, their temperatures ran up around 103° and 104°, just the worst attack you ever saw, broken out from head to foot. I was certainly proud of the fact that I did not have to worry about these little fellows.

Dr. H. F. Magee (Jackson): I just want to report a few cases from the Methodist Orphanage. We had 70 little girls between the ages of 5 and 11 years, six of whom went down with measles, with typical symptoms, severe coryza, cough, temperature 103 to 105, and a rash. Of the 64 remaining, 41 had never had measles. Doctor Garrison was kind enough to give us enough Baptist blood from recent convalescent children of the Baptist Institution to give 6 to 8 cc of serum to each of the 41 children. From the 41 children who had never had measles but were exposed, only 4 had symptoms—only slight rash, or slight sore throat, temperature about 100, all coming simultaneously lasting 24 or 36 hours. No complications and in fact only one of the four went to bed. The other three were isolated in the hospital room but were not sick. The original six cases ran high fever, severe cough, coryza and distinct rash, and were very sick for four or five days. The four cases receiving convalescent serum had only slight cough, coryza, temperature about 100, all coming simultaneously and lasting about 36 hours and were not really very sick. I think there was decided benefit derived from the Baptist convalescent serum.

Dr. H. C. Ricks (Jackson): One very important item to consider when the use of adult blood instead of convalescent serum is to be used in the prevention or attenuation of measles is: Has the adult from who you propose to obtain blood had measles? In a report from New York State where adult blood was used in an orphanage in an attempt to prevent or attenuate measles, the incidence of measles was reported just as high among the group receiving blood as among the group not receiving blood. The experience of others indicates that this donor had not had measles.

We do not consider that the rash of measles has anything to do with the transmission of the disease. I believe most authorities agree that the infectious agent is spread by the secretions of the nose and throat and probably most often before the rash appears. This is probably the only way the infectious agent responsible for the disease is spread.

Dr. Garrison, Jr., (Closing): First in answer to Dr. Scudder—I say yes you can have measles more than once in the same individual. I have seen it occur.

In speaking of the active and passive immunity I would like to answer Dr. Green and Dr. Smith together. When I showed you these tables I grouped these cases as being cases that were injected on the fourth day or earlier, and those that were injected from the fifth to eight days. In those cases injected before the fifth day a majority developed a passive immunity and the serum acts as any passive immunity serum, similar to the serum you give in scarlet fever. When you give this serum between the fourth and eighth day your patient develops an attenuated form of measles and they have just as much resistance as any other case has had, they have a continuous immunity which is an active immunity. In the passive immunity I stated that it lasts anywhere from six weeks to six months. After that it is probable that your patient will be just as liable to get measles next year. The value of your passive immunity is in your weak and debilitated case—also in your very young children.

Now in regard to the use of blood. I am reminded of a little occurrence that happened when I had my first personal experience in trying to do a little public health work. I was asked to go out and talk before a group of midwives, and I went out in great gusto and enthusiasm. I was ushered into a little negro church where there were some 15 or 20 negro mid-wives, all dressed in their white dresses. As I went in, a big, fat, black, gray-haired negro mammy arose and introduced me with a prayer that went something like this: "Oh, Lord, you done sent this little young fellow down here to talk to us. Lord, if he tell us right, Lord lift him up on high, but if he tell us wrong, Lord, you push him down." Well, that is the way I feel about giving whole blood—I am afraid if you go home and think it is such a simple thing, that you can get a case that has recently had measles and take a little of the blood and inject it into your exposed cases, you are going to get into trouble. There is an element of danger of anaphylaxis and one bad result will more than off-set many good results.

Dr. Clark, whom I am very sorry had to go home, had a series of 17 cases in his own private practice. He used convalescent serum prepared in the following manner: He drew off blood for a Wasserman and about 50 cc. which he placed in a sterile tube. He allowed this blood to sit in a warm place in his office until the clot had formed and retracted leaving the serum, then placed it in his ice box and used the serum when needed if the Wasserman test was negative. If you have a large Keidel tube, you could collect the blood in it and keep it in your office until needed, and the serum would remain sterile. It takes about 50 cc. of blood to yield you about 30 cc. of serum. Ordinarily blood serum loses its potency after storage of about six months. Some investigators have reported the stabilization of blood serum after it is dried, and if we can do that and store the dried serum, then there would be a means of having a constant supply. At the present time, we are doing a little work trying to put up a little dried serum.

MIDWIFERY CUSTOMS IN INDIA WHICH FAVOR TETANUS AND PRESSURE GANGRENE OF MOTHER AND DECOMPOSITION OF THE UNBORN. CASE REPORTS*

H. W. KNIGHT, M. D.

NEW ORLEANS

To work successfully among women in India during pregnancy and parturition, one is compelled to consider their devotion to their customs, traditions, and religious rites. These are considered more essential to them than life itself. Often both the lives of mother and child are sacrificed as a result of conforming to certain rules regarding childbirth and puerperium. This necessitates first winning their confidence and respect; then they will accept advice and service. There is a great gulf betwen their customs and ours. Their own they follow in blind faith, so gentleness, tact and patience are required to establish necessary confidence and acceptance of us. This is easily appreciated when we reflect on what would be our reaction if asked to change customs followed for many generations, such as, for instance, eating at a table. Ill-feeling engendered in one busti (house) quickly spreads to many others and further re-

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* Read before the Orleans Parish Medical Society, May 8, 1933.

lations are debarred by closed doors and forbidding looks.

The easiest way of cultivating friendship is generally through the children, but one must be careful to avoid admiring or praising a child excessively, as this will be expected to invite the visitation of the evil spirits in the child, which of course would be sure to do harm or even cause death. Many months of contact and friendly service must intervene before ties of confidence are established. Often this confidence is gained by service rendered in time of suffering or an accident.

It is essential, when visting the home, to ignore conditions which are unpleasant or even repulsive. At least one must not permit his feelings to be observed by them. Homes are not always as clean as we might expect and necessitate our wearing washable clothing for our task.

Superstitions form the greatest problems to be surmounted, as they often place us in a very undesirable status. For instance, there are numerous superstitions about strangers seeing the new born baby or seeing the mother before the ceremonial cleansing rite and bath. These are usually performed on the third, fifth or seventh day. If one should be insistent and the child should become ill or die (which very frequently occurs from tetanus about this time) it will be attributed to our visit. The most of the busties in that area at least will be seen with closed doors on the succeeding visits.

A fire is usually found burning at the inner threshold of the lying-in chamber. This fire is started when the placenta is burnt and it is kept up for days. The smoke fills the room which has every window and door closed, thus the atmosphere in which mother and child lives can easier be imagined than described. The fire is supposed to kep evil spirits from entering the room and causing trouble to both mother and child. Often those who enter the room are invited to step over the fire and shake the clothing so as to remove any lurking spirits of ill-omen. In some parts of India, the placenta is buried under the mother's bed, even though this may be simply a mat. There seems to be a strong prejudice against any person seeing the placenta or allowing it to be removed from the room. Sometimes the fire is kept under the mother's bed in cold weather and she often narrowly escapes getting on fire herself.

Among the articles deemed essential is a broom or date palm branch, and an iron implement is placed just outside the outer threshold. Hanging across the lentil is a string of garlic or onions, potatoes, chillies, leaves and many old articles. Occasionally an old shoe hangs in the middle of the string, while in other instances there is a bunch of fish nets. The sign of a birth in a Hindu household is a cactus on either side of the outer door and this is very strictly observed.

Hindu women are usually confined on the floor or on an old mat, while the Mohammedan women are usually confined on a charpoy (bed). While Hindu women are attended by out-caste women of the dhais group, Mohammedan women are attended by friends and relatives as well as dhais. The Hindu woman is put away on the first sign of a show, in a room usually the darkest and she is fortunate if she has a friend or relative who will remain with her and thus become unclean. Usually a piece of sacking of no special cleanliness is thrown on the floor and on this the baby is born. A piece of sacking or another mat is given for the bed during the puerperum. Occasionally one may be able to persuade the friends to give a charpoy but this is seldom. "After the bath" is the usual reply and so the woman lies on the ground during the time she needs the most care and comfort. Workers can usually persuade the people to supply some clean straw or grass to place under the mat to prevent exposure of both mother and child to the dampness and afford a little comfort .

As soon as the show begins, the mother is considered unclean. Her vessels and lota (water bottle) as well as lamp and other necessities are also unclean so they are placed on the outer threshold and she takes them into the room to be kept till after the "ceremonial bath". In many cases, the original principle underlying the strict seclusion during labor and puerperium is almost entirely lost in the unyielding custom of no outside help even though needed. When labor pains are slow, the female relatives and friends become impatient and taunt the dhai with doing nothing. In order to keep up appearances, the

dhai calls for oil (which is always supplied willingly) and she begins to lubricate the vagina and genitals in order to facilitate the passage of the child's head. This constant handling increases the danger of infection as little care is given to cleansing the hands. In many cases it is not the dhai's fault, because if there is much delay, one dhai after another is called and each resorts to all the extreme measures she knows. I have seen four and five present at a time. The position of the child is not determined and delay materially interferes with the woman's chance of recovery, as they try to remove the child forcibly. They usually understand that a transverse position requires the child to be turned and this they proceed to do without washing their hands or taking any precautions. Their proceedure puts the woman in intense agony. There were cases which adds excessive misery to that regularly limbs have been pulled off the body of the child. I have seen women who were worked over and tortured by unskilled hands till exhaustion and cessation of all labor pains resulted while the head was lodged in the pelvis obstructing the circulation. The child of course was dead and gangrene of the vagina and vulva was present. Fifty per cent of the cases where gangrene of the genitalia was present, died, although the child was easily delivered by forceps without laceration of the perineum.

One procedure in childbirth is to require the woman to walk around a rope hanging from the roof. This is required for hours by some dhais. She is required to assume every conceivable attitude or is placed in attitudes and held there which adds excessive misery to that regularly endured in slow delivery.

Mohammedans have a dried flower "Miriam Kiphul" (Rose of Sharon) which is placed in water to expand, and this is believed to asist in labor if drunk in the first stage. The Hindus have the woman drink some water brought from the temple in a lotus leaf. These are harmless customs and may encourage by suggestion. There are, however, procedures which are extremely unpleasant and those which are dangerous. It is quite common for a midwife to hang a plait of hair (usually reeking in rancid and illy smelling oil) under the nose to cause pain in the second stages of labor. This is not so bad as stuffing the mouth full of oily hair to cause retching and vomiting in order to expell the placenta. What really is dangerous, however, is the forcible manual removal of the placenta. Immediately after this, the patient is made to stand against the wall and the abdomen is massaged with the hands or the head of the dhai to force the bad blood away. Added to this are three days total starvation except for the "gurum masalas". This mess of gurum masalas must be concocted by a "Bunia" (a certain outcaste) and is composed of the following:—Aijawain (Bishop's weed), Hing (Folia Asafoetida), Gour (crude sugar), dried green Adarkh (ginger), Haldi (tumeric), Rei tale (mustard oil), etc.

Every caste has some variation and Syed Sirai Ul Hassan, a judge, gives the following concerning the Brahmanic ceremonial followed in the natal and post-natal period: "A woman in child-birth is ceremonially impure for ten days. When labor begins she is taken into a room rendered artificially warm. The midwife, who is a woman of any caste, cuts the umbilical cord, removes the puerperal impurities, bathes the mother and child and lays them on a cot. Both the cord and the impurities are enclosed in an earthen pot and buried. The mother is given a mixture of saffron and ghi. During the first two days the child is maintained on cow's milk, castor oil and honey being given to it at intervals. On the third day after birth the mother is presented with cocoanuts and red powder and for the first time gives her breast to the child. When the child is six days old the father worships Sasto or Satwai, who is supposed to assist at childbirth and to be the guardian of young children. The goddess is represented by two dolls of wheat flour and a sickle with its blade painted with strips of chunam (lime). Offerings of flowers, betel-leaves and nuts, sweet-meats and roast gram, are made to the goddess, and a vigil is kept during the night in her honour. On the 11th day the mother bathes and is free from child impurity. The child is named on the 12th day, when friends and relatives are entertained at a feast." The same author describes the custom of the Erakalas as follows:—"The moment labour begins, the woman communicates the fact to her husband, who immediately retires to a dark room and lies on a bed, covering hifself

with his wife's clothes. When the child is born it is placed by the side of the father, who has his teeth daubed with dentifrice and his eyelashes smeared with lamp-black, while all the prescribed medicines are given to him and he is not allowed to leave his bed for three days, during which period he is regarded as being impure. No attention, on the other hand, is shown to the mother, who lies neglected on the ground. She is given no medicine and no food except bread." Thus it is apparent that, while the customs of each caste are dfiferent in and after childbirth, there is a mixture of superstition and religious rties in each which materially interferes with the woman receiving proper care.

The baby is sometimes oiled and then supposedly washed with powdered brick in place of soap. The skin is so roughly scrubbed and wiped that it is a wonder that it is not bruised. As soon as everything is over, the dhai warms her hands over the fire and sankos (foments) the child The soot and smoke settle on the cord and in twenty-four hours it has become unbelievably hard, dry and black. It usually falls off on the third day In the Punjab, after the cord has fallen off, it is suspended by a long string passed around the child's neck as a charm. The baby is not put to the mother's breast till the third day. In the meantime, it is given, every little while, a few drops of goat's or cow's milk undiluted. This is given by dipping a piece of cloth in the liquid and letting the baby suck. In one case the baby was being given a mixture of castor oil and honey in place of cow's milk. The cloth is left in an open dish of milk which is thus exposed to dust and flies. In some parts of eastern India, the child is given a dose of castor oil when it is born and one grain of calomel next morning.

When tetanus occurs, the dhai is never blamed but the evil spirit is believed to have effected an entrance and shut the child's mouth. Someone having a gun is implored to come and fire it off in the house to scare the evil spirit and thus drive it from the house. Although this always fails, faith in its efficacy is undiminished.

The infant mortality is appalling from many causes other than from premature birth due to specific diseases. The most frequent causes are tetanus from infected cord; also a large number from pneumonia and intestinal troubles, principally due to exposure from insufficient clothing. The very fact that the new born infant lies naked on the floor or on an old piece of rag, absolutely uncovered, till the completion of the third stage of labor, is sufficient to reduce the resistance to disease by chilling. But the custom is to keep no clothing on the child until the ceremonial bath is over; even then the only clothing is a small jacket and a warm covering for the head. The head is well covered with a gay looking cap with a cloth tightly wrapped over the cap and tied behind the neck. From the waist down, the body is absolutely nude. When carrying the child astride the hip, the jacket is pushed upward exposing the back even during the rains. This exposure is folowed by many deaths. The reason for half clothing the infant is due to the lack of its training in regular habits while a little earth covers all traces of neglect. The chilling of the bowels during teething is followed by a few days of illness and death in many instances. The marvel is not that so many die, but that many survive under this Spartan treatment and upbringing. It is truly, a case of "Survival of the fittest".

It is considered a very dangerous proceeding to prepare the baby's clothes beforehand, as thus the evil spirit would be attracted either before or after birth to cause deformity, sickness or death to the infant. For the same reason, a nickname is given visitors instead of the child's real name. Only the priest uses the real name at the "Naming ceremony" as thus the evil spirit cannot find and molest the child.

NOTES OF CASES

(1) There is evidence that the danger to the mother does not cease at the time delivery is completed. Meddlesome interference was noted in a case to which I was called during the puerperium. The woman was a Mohammedan living in Bidar, Deccan, and had been delivered by a dhai. When I was called, she was lying on a dirt floor in a hopeless condition from tetanus. I examined the vagina and found old colored rags, one containing an ancient and a modern copper coin and another containing several kinds of small grain which were used as food. This doubtless was the cause of the tetanus in-

fection, as there was nothing to indicate that these were not filthy before insertion.

(2) My surprise was unsurpassed while at Pakaur, Bengal, when I was told that a woman thirty miles up the railroad had been seventy-two hours in labor. The station-master arranged that she be brought by the downcoming midnight train. Examination revealed the head resting on the pelvic floor, R. O. A., cessation of pains and head extended. There were two very dark spots about an inch by three on the labias. These spots could be easily recognized as gangrenous and due to long continued pressure of the undelivired head. Instruments were made ready and just sufficient chloroform was administered to relax the patient when instruments were applied. Supporting the perineum, the head was delivered without difficulty. No trouble was experienced in delivering the body of the dead child and the detached putrid placenta came at once. Relief was thus rapidly given and examination of the perineum showed that no laceration had occurred but the vaginal mucosa was sloughing gangrenous tissue and long shreds were removed by flushing with normal saline solution. If this woman had had a little assistance in guiding the head, there would have been no complication, for the child weighed only eight pounds.

The after-treatment was constant irrigation with normal saline solution at 100° F., for a number of days till the sloughing tissue was removed. The spots on the labias sloughed and were treated with protective and antiseptic dressings of iodoform. Tonic treatment and anti-tetanic serum were given. This case recovered but the entire vagina was destroyed.

(3) While at Bidar, Deccan, I was called to a Hindu woman three days in labor, who lived seven miles away from the station. I placed a portable operating, a sterilizer containing necessary instruments. irrigator, douche-pan, trays, pitcher, surgeon's robe, gloves, towels, sheets, coton and gauze, and a medicine chest into a motor car and we drove across the plateau to a village of mud houses with straw thatched roofing. In one of these houses was the patient, who stood when I entered the dark room. There was a three foot porch on the street. On this the operating table was placed and large clothes were hung for screening around the porch, as men, women and children had gathered in the street and elsewhere to see.

On examining the woman, the head was found resting on the perineum, R. O. A., absence of pain and head extended while, as in the previous case, there were two gangrenous spots on the labias. My assistant had built a fire in the street and had the water supply boiled and sterilization completed. In a short time, with forceps, the child was delivered with no difficulty or injury to the mother. The entire vaginal mucosa was badly decomposed and irrigation was used to remove the long shreds as much as possible. It was deemed necessary to move the woman to hospital, as she had one sinking spell and would require attention which would be impossible at the home. A litter was built and she was carried by relays of men as carefully as possible, but she died just as she reached the hospital. This would doubtless have occurred if she had remianed in the village.

(4) A woman was brought twenty-five mlies to hospital in a bullock-cart, which had no springs. The case was one of head presentation of two days duration, L. O. A., cessation of all pains and head extended. The long oval gangrenous spots involving the labias were like the others described. The head and body of the child were delivered by instruments without injury to the perineum. This woman was of a sect of Hindus known as Lingyats (Worshipers of the procreative force) and therefore was unclean during childbirth. Hot normal saline solution was used for four days and medication as indicated to sustain the functions of the body. Also anti-tetanic serum was given and frequent small doses of magnessium sulphate. She lived for four days and suddenly collapsed as a result of the severe toxemia to all probability. Her own people could not bury her without breaking caste rules and so the Christians, who were of the outcaste people, buried her in the mode of her people, that is, in a sitting posture with the arms across the chest and facing West. It seems that many postures and ceremonies are practiced in India.

(5) I was called some ten miles to a village down the slope of the plateau and across the black cotton soil plain. The houses were made

of stone and formed a court by being built on four sides of an open square. In one of these rooms was a Lingyat woman who was unable to deliver a child whose head was resting on the perineal floor, L. O. A., cessation of pains and head extended. The case had been in that condition for two days. Instrumental delivery soon relieved the woman with no injury to the perineum. The friends of the patient were intelligent and dependable and so treatment was possible at home. The condition of the patient was the same as that of the other patients having the gangrenous spots on the labias and the sloughing of the vaginal musoca. The treatment was the same and the woman recovered after a protracted illness.

It is interesting that the gangrenous areas were always elongated oval spots on the labia majora that the vaginal mucosa was always in an advanced state of decomposition, and that the placenta in each case was entirely separated and greatly decomposed. The rectum protruded and showed signs of venous and arterial obstruction. All the children were in process of decomposition and therefore had been dead for some time. Of the four cases seen in this state, two died. The definite lines of demarcation, mode of sloughing and character showed this to be due to pressure and what is termed dry gangrene. In all my experience in America, India and Africa, I have never seen or heard of cases of this character beyond these four, and I have found no mention of dry gangrene occurring in labor cases in medical literature.

(6) One night at Bidar an Indian Civil Surgeon requested that a case be brought to the hospital for my assistance. At midnight we examined the woman and found the child in breach presentation. One leg had been pulled off and the other was up along the body while the buttock was engaged in the pelvis. In attempting to bring down the leg, it separated from the body and was delivered with the aid of placenta forceps. The body was removed by the use of Hodge's forceps, but not without great difficulty because putrifactive changes were present in the child and the head became separated from the trunk. It required several applications of the forceps before the head could be delivered. This woman, however, made an uneventful recovery. It was deemed necessary to give antitetanic serum to avoid possible danger from uncleanly manipulations. The case illustrates what conditions may develop in many attended by dhais.

(7) A woman was brought to hospital with the child in shoulder presentation. The dhai had brought down the arm, produced traction therewith and had pulled it off at the shoulder. By a little manipulation, the head was in presentation when the application of forceps enabled the child to be delivered and the woman made an uneventful recovery.

Thus an entangling web of superstitions, customs, and religious rites catches the teeming millions of India and render them powerless. Men are often enlightened but are powerless because the home is woman's realm where she and her neighbors reign supreme, being supersaturated with superstitions.

(8) The last abnormal case which will be reported is an uncommon condition with which to meet. A Hindu woman had failed to be delivered in full, as the child was decomposed. The bones of the skull were removed separately by gloved fingers, protecting the soft parts of the mother. The clavivles were brought out, as they were free. The arms must have been pulled off. Heavy vulsellum forceps were then attached, a blade at a time and locked together with gauze, and the body was delivered. The decomposition of the placenta and soft parts of the child rendered the work most difficult. A constant irrigation for several days with normal saline solution restored the normal tone of the tissue. Antitetanic serum was administered as in the other doubtful cases. Recovery followed and the case was discharged after twenty days in hospital.

DATA DERIVED FROM GOVERNMENT REPORTS AND CENSUS

It is difficult to realize the vast need of women in the East during pregnancy, parturition and the puerperium. It is also difficult to portray the slowness with which the people gain confidence in Western methods. The census returns and vital statistics afford a limited study of the actual fatality from childbirth to both mother and child and the deaths during childhood. Re-

ducing the figures available to smaller proportions we can obtain a better idea, especially when we take Bengal Province with 46 1-2 million population, as such a smaller area, in place of all of India.

In Bengal Province, India:—

Every 10 minutes—24 babies are born.

Every 10 minutes—5 babies die from birth causes.

Every 10 minutes—1 mother dies from childbirth.

Thus about 60,000 mothers in Bengal Province die every year from childbirth while in all India it is estimated that about 322,000 mothers die from childbirth. All India aprpoximates 31 deaths of babies from birth causes every ten minutes.

AGE DISTRIBUTION

It is estimated that the distribution of female deaths from prenatal, natal and post-natal conditions, based on a study of 3700 cases of childbirth, may be considered as follows:—

Under 15 years	8% to 10%
Between 15 & 20 years	50% to 60%
Between 20 & 30 years	30% to 33%
Above 40 years	3% to 4%

The main causes of maternal deaths due to pregnancy complications were estimated as follows:—

Accidents of labor occasion 5.4 maternal deaths per M births,

Puerperal fever occasions 6.5 maternal deaths per M births.

Tetanus occasion 0.8 maternal deaths per M births.

The remaining being due to eclampsia, anaemia and a post-natal condition known as "Sutika". Eclampsia deaths are numerous and also a large number die from sutika which is a term applied to a puerperal diarrhoea occurring in Bengal.

From these findings, it is apparent that a gigantic task confronts the profession in India, where there is only one hospital where forty are needed and even in Bengal, which is far ahead of other parts of India in medical education, there is only one doctor for 11,744 population. This scarcity of doctors has forced the Government of India to arrange for the training of indigineous dhais, or midwives, which has proved a very difficult method since these women feel that nothing can be told them since they are born to their calling. Public opinion is gradually being changed by means of propaganda and public health exhibitions.

DISCUSSION

Dr. H. E. Bernadas: This is not a discussion but a congratulation of Dr. Knight for having brought this matter before us. Most of us who have read of the obstetric customs of India, among others Katherine Mayo's "Mother India", have looked upon the description there as exaggerated, but the doctor's paper brings it right home to us, and the land of Ghandhi still has some progress to make.

Dr. Knight: I do not think there is any diccussion. I brought home those two copper coins and the bones of the skeleton removed from the vagina, and if some want to see those, I will be glad to show them.

The queer thing to me in this whole subject was the rapid decomposition of the child within the mother. We had one case where in 48 hours, the placenta was detached, the child died and decomposition took place so rapidly it was almost impossible to get hold of anything. All tissue was loose from the bones and they were easily cleaned. It is remarkable that these things transpired in the face of the effort of Government to remove the difficulty of gaining assistance.

MANDIBULAR THIRD MOLAR INFECTIONS AND COMPLICATIONS*

SIDNEY L. TIBLIER, D. D. S.
NEW ORLEANS

Third molar infections can be classed under three main headings. (1) The apical infection occurring as a sequel to a dead pulp, i. e. the infection of the bony structure at the apex of the tooth comes about from infection introduced through the root canal or canals after the death of the pulp. (2) Infection of the bony and as well as of the soft tissues surrounding this tooth, resulting from periodontal lesions, commonly known as pyorrhea. This type of pathology affords large areas for absorption of toxins and the entrance of bacteria into the surrounding tissues under conditions of lowered local and general resistance. (3) Infections beginning in the ruptured capsules of partly erupted, nonerupted and impacted teeth. Whatever the causes for the noneruption or impaction the fact remains that these ruptured capsules

*Read before the Orleans Parish Medical Society, February 13, 1933.

form crypts, which allow infectious organisms to lodge and actually enter the tissues on account of a lowered resistance due to congestion in this area.

The third molar, involved very frequently in either of the ways just described or a combination of these, is a singular factor in the severe infections of the adjacent tissues, bone and soft tissue;

1. Because of its proximity to the pharyngeal tissues infection spreads very easily in a distal direction to the tonsillar region.

2. Because of the thinness of the lingual plate near this tooth, in the average case, perforation and drainage of alveolar abscesses and pariteal abscesses occur lingually and under the attachments to the mylohyoid ridge.

I would like at this time to give credit to Dr. Walter Hava for a recent and very interesting dissertation on this particular point some time ago before the District Dental Society.

3. Because the third molar by reason of its location in the arch is not easily cleansed nor is it, as a rule, functioning properly in mastication and as a result decay and periodontal disease make rapid headway.

4. Because all too frequently on account of lack of jaw development the third molar cannot assume a fully erupted position in the arch, a gum flap exists over this tooth which acts as a trap for food debris producing congestion and eventually infection. This is a favorite site for specific acute or chronic infection, Vincent's.

5. Because collateral edema incident to infection of the third molar region means difficulty in swallowing and respiratory embarrassment. Complications of third molar infections may be listed as follows:

1. Peritonsillar abscess.
2. Suppurative cellulitis of the floor of mouth and connective tissue planes of the neck.
3. Involvement of salivary glands.
4. Edema of epiglottis.
5. Osteomyelitis.
6. Trismus and false ankylosis.
7. Tumor formation.
8. Ludwig's angina.
9. Reflex disturbances.
10. General toxemia and septicemia.
11. Involvement of other organs distant from the original site of trouble.
12. Dentigerous cysts in which the third molar is the tooth contained.

Time does not permit lengthy discussion of each of these complications. Each is a subject unto itself but it is my purpose in this short paper to point out certain salient points about the handling of these third molar infections and their more common complications.

The diagnosis and treatment of the average third molar infection in its early stages, be it alveolar abscess, periodontal lesion or infected flap or capsule is relatively easy. There is no excuse for failure to diagnose early third molar troubles if all the diagnostic means at our command are used.

Roentgenograms, transillumination, and clinical examination combined will give the true picture. The treatment of third molar infections in the cold or chronic state is of interest only to the dental surgeon, who using care will bring about uneventful recovery after extraction, or the excision of a gum flap.

The conservative treatment of the acute infections in the hands of the competent dental surgeon will also generally bring about good results. I would emphasize conservative treatment for in acute cases it means the postponement of any trauma until such a time as acute symptoms have subsided.

There are three principal reasons for the all too common severe complications of these infections.

1. The too hasty surgical intervention in these infections in the acute stage, resulting in spreading the infection rather than eliminating it.

2. The unfortunate picture of severe flare ups. Even though surgery is performed under cold conditions, still on account of poor local and systematic resistance or the high virulence of organisms present, post-operative complications manifest themselves.

3. Pure neglect. Failure to heed the advice of dentist or physician to eliminate these veritable smouldering volcanoes, when the necessary minor surgery in time would bring about uneventful recovery.

Let us consider briefly the treatment of the complicated case. This case is treated either by

the dental surgeon who is qualified to do so by hospital training and experience or by the general surgeon to whom the patient presents or to whom the patient is referred by the dentist not familiar with the handling of such cases. The case should be hospitalized immediately, and is prepared just as any other acute surgical case is prepared. As a rule the necessity of incision and drainage is evident.

The infection and pus formation have left the original site and the problem is locating it as soon as possible. The edema and cellulitis of the adjacent tissues in neck are serious considerations from a standpoint of dysphagia and respiratory interference. Couple these annoying symptoms with trismus so frequently present, and the case presents a real problem.

Depending upon the type and virulence of the organisms concerned in the infection, the patient shows signs of toxemia and acidosis which must be combatted. Hot magnesium sulphate packs in water or glycerin are indicated for softening or pointing if the swelling is so pronounced as to indicate the necessity of extraoral drainage. Otherwise ice cap to face and neck and the use of hot water continually in the mouth might allow for intraoral incision and drainage.

As a rule with third molar infections, however, the pus is located below the mylohyoid attachments, and adequate drainage is better obtained by extraoral incision. Another difficulty in the way of intraoral incision for deep seated infection is the danger of reinfection from the mouth flora if tubes or rubber dam are placed in the incision for continuous drainage.

In the abstract the idea is to establish drainage as quickly and as efficiently as possible, as the accompanying cellulitis and edema of the adjacent tissues must be counteracted. Since the infection has left the original site, the extraction of the tooth is rarely indicated for little drainage is affected thereby and the trauma produced, especially in the removal of impactions, merely add to the trouble. The tooth can be taken out at a later date under local after all acute symptoms have subsided.

One of the most difficult problems in the handling of these cases is anesthesia. Local is out of the question if real anesthesia is sought. All such cases are poor risks as far as general anesthesia is concerned. The possibility of spontaneous rupture inside the mouth or throat with consequent inhalation of septic material into the lungs makes the situation still more serious.

The use of nasal tubes with nitrous oxide or ethylene with throat packs is indicated, therefore in some cases, but even then the respiratory embarrassment caused by the cellulitis and edema plus the effect of toxin absorption on the respiratory function has to be reckoned with. Many cases of staphylococcus and colon bacillis infection with intense swelling, pointing quickly, with pus palpable just under the skin can be opened without anesthesia.

Early and radical counter incisions with fenestrated rubber tube drainage is indicated in the hard swellings involving the submaxillary and submental regions on both sides, although little or no pus is usually encountered in these cases. These are usually streptococcus infections and having all the symptoms of a Ludwig's angina. Serums and vaccines can be used to advantage. We have had some success with the use of streptococcus immunogen and the polyvalent.

Just a few remarks regarding osteomyelitis as a complication of third molar infection. A conservative treatment, including the establishment of drainage intraorally or extraorally, as it is deemed necessary and then watchful waiting is indicated. Roentgenray findings in the early stages are of little use but as necrosis and sequestrum formation occur, the roentgen ray becomes an invaluable aid in locating the sequestra and simplifying their removal. In the mean time a diet rich in calcium, vitamin C and D and plenty of sunshine and rest are of paramount importance in bringing about increased resistance so necessary in stemming the progress of this infection.

These serious third molar complications, although not everyday affairs, occur far too frequently and especially is this true during our economic crisis when people are postponing the proper and early care of their troubles. Add to this the weakening of the defensive barriers occasioned by worry, faulty diet, etc., then it is no wonder that we are confronted with the sad spectable of conditions which could have easily been prevented. We need a little more co-opera-

tion between the physician and dentist in establishing more early diagnosis of third molar involvements and insistence on their elimination.

There is no excuse for diagnostic failure with the present methods of examination. Relatively few cases of severe post-operative complications result from operations of third molar infection in the cold state. These isolated cases only occur in patients of low resistance and where the organisms involved is of a high virulence.

DISCUSSION

Dr. J. T. Nix: I would like to consider a few of the points of the essayist and simply emphasize what Dr. Tiblier has so well brought out.

I think first of all these cases are distinctly individualistic. We can not lay down any set of rules to follow for all cases. In the few we have had which required consultation of a surgeon-dentist, each was just a little different from every other one. When they are viewed from this angle, when proper and timely care is given, bad results are usually preventable. In nearly every instance where a case came to our notice acutely ill, presenting a serious complication, had that patient been handled differently from the beginning by the surgeon, the dentist or the medical man in charge, the complication in all probability would not have resulted.

I think nearly all authorities agree that in the presence of an extensive fulminating infection surgery should be limited to the least possible amount adequate for drainage.

Another point that should be stressed is that these cases represnt real bone surgery. Although this phase of work has been included by the dentist, the oral surgeon, it is truly bone surgery and therefore should be handled in the same manner as we have handled bone surgery in the past. Remember the maxim of the immortal John B. Murphy: "Keep your fingers out of the wound". This is especially true in dealing with conditions of the mouth.

The indefinite term, Ludwig's angina, to my mind, in many instances represents cases improperly handled from the beginning, when definite cellulitis and perhaps lymphadenitis has developed secondarily following an infected tooth. The nature of the organisms may vary. As a rule, however, you will find the staphylococcus, streptococcus and colon bacillus. It, of course, presents definite clinical symptoms and physical signs, but these same signs and symptom are to be found in any locality where this particular variety of infection is present with these specific organisms playing the major role.

I think dental surgeons should also call into consultation the general surgeon, particularly when the infection has gone beyond the mandible and invaded the soft parts, where there is suppurative cellulitis with breaking down and pus formation. Most of these cases should be opened externally and preferably under local anesthesia. I can recall one case very well where an extensive suppurating cellulitis was opened through the mouth and the infection increased very rapidly, the patient dying in forty-eight hours. The patient might have died had the incision been made through the skin, but, to my mind, the danger of an extension of the infection would have been greatly decreased.

I can also recall off-hand two or three cases with retropharyngeal abscesses who died on the operating table when the abscess was opened under general anesthesia. Therefore it can not be stressed too much, when you believe there is an extensive infection with tissue breaking down and a localized accumulation of pus, the patient should be in an operating room where you have the facilities for aspirating pus completely and promptly once the cavity is opened, and the operation should be performed under local anesthesia.

I think vaccine, of course, should be used and in most instances, for the sake of expediency, stock vaccine. Starting off with a large dose usually gives the best results. In a case Dr. Tiblier saw with me about one year ago, I recommended a small initial dose of stock vaccine, increasing the dose as directed on the package. Fortunately the patient recovered because of the combined treatment. But if this same case presented itself today, I would start with a large initial dose of stock vaccine as outlined recently by Dr. Shirley Lyons in the treatment of carbuncles.

I want to thank Dr. Tiblier for the real privilege that I feel in being asked to discuss his excellent and illuminating paper.

Dr. S. L. Tiblier, (closing): There is only one point that I want to emphasize after I express my thanks to Dr. Nix for his discussion of my paper, and that is, his opinion that these cases are practically all preventable. I think this is an important point and all dental surgeons agree in this opinion.

These conditions of mandibular third molars are easily diagnosed, and if we could convince patients of the idea that full mouth roentgen-ray examination and clinical oral examinations should be done more frequently, these severe reactions could be avoided, for infections of the type described would be diagnosed in the dormant chronic state and eliminated before acute symptoms develop.

If examinations are complete, there is no excuse for failure to diagnose such conditions.

As a dental surgeon I would ask your co-operation in advising complete examination when there is a suspicion of the presence of oral chronic infections, especially of lower third molar regions.

Mild subacute flare ups of these chronic infections often occur and should be taken as warning that more serious involvements might follow.

Diagnosis and elimination of these infections is a simple procedure in most cases. Rarely do severe complications arise in the cases operated upon in the cold state. All cases present the possibility of severe extensive infections if left untreated and hence, call for their removal as early as diagnosed.

I want to thank you again for this opportunity to appear before you and to thank Dr. Nix again for his kind appreciation of the views of the dental surgeon on this subject.

THE PHYSICIAN AND THE NATIONAL RECOVERY ADMINISTRATION

It has been definitely settled that physicians, in the discharge of their professional duties, are not within the terms of the National Industrial Recovery Act. A physician may work as many hours as he finds expedient and for as small compensation as he is willing to accept, and he will violate no law and no federal policy.

THE JOURNAL last week said: "However, if a physician employs more than two persons as attendants in his office, of the class of clerical employees, accountants, laborers and similar types of help, they do come under the National Recovery Act with a minimum wage and certain maximum hours of work." Because of many rulings reported from various parts of the country that were inconsistent with this statement, a ruling was requested from General Thomas S. Hammond, executive director the President's reemployment program. The policy stated in THE JOURNAL, said General Hammond, concerning physicians as employers of certain types of help, is sound and has his approval. Rulings from other sources may be disregarded.

Many physicians have manifested concern because a proposed code of fair practice for the retail drug trade, prepared and published by the National Association of Retail Druggists, contained provisions from which it might be inferred that physicians would be required to purchase medicinal preparations, drugs, pharmaceuticals and chemicals, applicable to the outside or inside of the human body, from retail druggists and to pay retail prices, and that physicians would not be permitted to distribute drugs and medicines to their patients and to receive pay for them. The draft of the proposed code seemed to be designed, too, to prevent hospitals from maintaining drug rooms for the compounding and dispensing of drugs necessary in the operation of the hospital, unless such drug rooms were under the supervision of registered pharmacists or licensed physicians at all times when in operation. In a later draft of this proposed retail drug trade code, these objectionable provisions have been eliminated.

While the draft of a proposed code published by the National Association of Drug Clerks contains the same objectionable provision looking toward the closing of the drug rooms in all hospitals and dispensaries throughout the country, when such drug rooms are not, when in operation, under the constant supervision of registered pharmacists or licensed physicians, it seems hardly likely that this proposal will carry much weight in view of the fact that the National Association of Retail Druggists has eliminated an analogous provision from its draft of a proposed code. The code proposed by the National Association of Drug Clerks, however, is worthy of commendation because there is incorporated in it a specific provision that "in view of the fact that the professional training of a pharmacist does not qualify him to intelligently diagnose and treat diseases, proprietors or employees shall decline to give medical advice and refer the general public seeking such advice to a regular practicing physician." This code properly proposes, too, that "proprietors and employees shall at all times uphold the professional reputation of physicians, in return expecting the same consideration from the medical profession."

In considering the present activities of the government under the National Industrial Recovery Act, it must be borne in mind that they will admittedly lead to increased prices, even if that is not their avowed purpose. In trades and industries, it may be economically sound to increase prices. It can hardly be regarded as economically sound, however, to increase the cost of medical and hospital services to those who are sick and injured and to women during confinement, and thus to add to their burdens. Undoubtedly this aspect of the matter will be taken into consideration by the National Recovery Administration in its endeavors to apply the act to the medical profession and to related activities. The American Medical Association, however, will keep in touch with the situation, to see that the public health is not jeopardized by any decision affecting adversely the interests of those in need of medical services.—*Jour. A. M.*, 101: 606, 1933.

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CHANGING TRENDS OF PRACTICE

The practice of medicine as now conducted presents very many different problems from those of twenty-five to fifty years ago. As an example of present day difficulties consider that an enormous section of the population is receiving free treatment for every kind of illness. In the past most of these people were taken care of by individuals economically able to look out for their employees, their servants and those who worked for them. A large number of the contemporaneous populace pay for minor sicknesses but can not, or will not, pay for severe or long continued illnesses. Figures vary, but probably about forty-five per cent of the population of this country have incomes under $1,500.00 a year, a sum insufficient to pay for even the most incomplete and most inadequate medical care. Pottenger* states that seventy-nine per cent of the population of San Francisco have incomes under $2,000.00, so that they are unable, when ill, freely to consult the doctor. This leaves approximately only twenty-one per cent who might be considered able to pay for complete medical care. These startling statistics show the way in which the changing trend of medical practice has turned.

Infant mortality has been reduced nearly sixty per cent in twenty years. Life expansion has jumped eighteen years in the past four decades. Nowadays a very considerable part of the practice of the physician consists in the taking care of old people who are economically dependent and who have to call on others for their very sustenance. The increased bacteriologic and epidemiologic knowledge and advances in sanitary arts have reduced the field of short lived infections, which made up the bulk of the doctor's practice some years ago, the type of disease which the sick man could readily finance. There has been a very large increase in the functional disorders, expressions of disease which are not cured in a day, a week, or a month, but often require long periods of careful attention by the physician before these people recover.

These changing types of practice indicate definitely why in this present era the doctors are having difficulty in making a living. Some change will have to eventuate in the practice of medicine in order to permit the doctor to live in a manner which will compensate him for the years of study that he has given to the learning of his profession, and the thousands of dollars that have been spent in obtaining this medical education. He should be able in his active days to put money enough aside to give him surcease from worry in his old age. The way things are going at the present time this

is possible for only an exceptional few. How best to make it possible for the entire profession or at least the deserving members of our great profession to obtain proper and sufficient emoluments is a problem which confronts the leaders of our profession.

*Pottenger, F. M.: President's Address. Ann. Int. Med., 6:1517, 1933.

TREATMENT OF NEUROSYPHILIS

The recent interest that has been shown in the treatment of certain types of neurosyphilis by the induction of malaria and artificial fever, has more or less focused general attention on this subject. It seems appropriate, therefore, that Hopkins* should report at this time on a series of 1200 patients who were treated in the syphilis division of the Medical Clinic of Johns Hopkins Hospital. This report is peculiarly timely because no similar report has appeared since 1927 at which date necessarily certain of the more modern methods of treatment were not available. The cases were divided into those patients with early neurosyphilis, those with diffuse late neurosyphilis, those with paresis, a group of patients who had tabes, still another with optic atrophy and lastly, those who had vascular neurosyphilis. Of these 1200 patients, only 480 were under treatment and observation two or more years, the average period being approximately ten years. Two hundred of the patients died while under observation. The patients were treated according to six types of therapy: poor treatment—that is, treatment for less than one year; routine treatment—arsphenamine alternating with mercury and bismuth, together with large doses of potassium iodide in courses; intensified routine treatment—larger doses and longer courses of the arsphenamnie; routine treatment to which was added intradural injections by the Swift-Ellis method; routine treatment with tryparsamide at weekly intervals, and routine treatment plus malaria. It was found that in early neurosyphilis the best results were obtained with an intensified form of the routine treatment with arsphenamine. In late neurosyphilis routine treatment was inferior to the use of the arsphenamized serum, tryparsamide or malaria. Malaria was by far the best treatment for paresis or the tabetic form of dementia paralytica. In tabes the best results were obtained with malaria, although tryparsamide was almos tequally efficacious. In optic atrophy apparently the subdural injections of arsphenamine were valuable. There were too few patients with vascular neurosyphilis to make a proper statistical study.

An analysis of this excellent presentation would show that it is possible for the general practitioner to carry out satisfactorily, the treatment of the patients with neurosyphilis. Intensified treatment with arsphenamine in large doses and in courses of ten or fifteen injections together with large doses of potassium iodide, should produce results. Tryparsamide may be given by any practitioner of medicine. The only difficulty with the malaria treatment lies in the inability of most men to obtain the plasmodia, with an added responsibility of watching the patient with malaria most closely; it would seem that these patients had better receive treatment in an institution rather than in a private home. The paper would substantiate what has been generally appreciated that the neurosyphilitic patient can be materially helped by active, energetic treatment directed towards eradication of the syphilitic process.

*Hopkins, H. H.: Treatment of Neurosyphilis—Review of Results in Six Hundred and Eighty Patients. Arch. Int. Med., 52:66, 1933.

THE PATHOGENESIS OF ALCOHOLIC POLYNEURITIS

An interesting communication has appeared from the Thorndike Memorial Laboratory in which Minot, Strauss and Cobb* discuss the possible relationship of alcoholic neuritis to the multiple neuritis of beriberi. The concept that multiple neuritis is capable of being produced by dietary deficiency has been virtually neglected in the literature but because of the similarity of the symptoms and pathology of the neuritis of beriberi and alcoholic neuritis, this neglect of a hypothesis which might explain the causation of alcoholic neuritis is rather remarkable. There can be no question but that an individual with alcoholic neuritis is fre-

quently one who eats an abnormal diet, inadequate in protein, minerals and vitamins and composed largely of carbohydrate. This is substantiated by Minot and his workers in their detailed dietary histories of 43 patients in no one of whom had the diet been satisfactory for a period of many months. The gastric analysis of the alcoholic showed the usual finding, low, or no acid, which is common to other types of avitamnioses such as pellagra, pernicious anemia, hyperchromic anemia, and beriberi. Another factor which may explain the inadequacy or insufficiency of utilization of vitamin B is that in the alcoholic there is a marked increase in the total daily metabolism as a result of ingestion of large quantities of alcohol. It is just at this time that the diet is wont to be particularly deficient. Contrasting beriberi it is known the man with sub-clinical beriberi may develop the neuritic symptoms following the raising of the total metabolism by exercise.

It seems logical to assume that dietary deficiency, more particularly the lack of vitamin B_1, does have an important part in the production of alcoholic polyneuritis because it occurs frequently in patients who have grossly inadequate diets; the objective lesions and the subjective symptoms resemble closely dry beriberi; the essential pathology is likewise similar; infection may precipitate the neuritis in both conditions; achlorhydria occurs in many well known deficiency diseases; neuritis may occur in deficiency diseases other than beriberi; the most satisfactory improvement occurs when a diet rich in complete proteins, minerals and vitamins is given to the patient with polyneuritis. The deficiency may be due to inadequate intake of vitamin B_1, to the condition of the gastro-intestinal tract, and the presence of other factors, according to Minot, that inhibit the value of the nutritional elements.

*Minot, G. R., Strauss, M. B., and Cobb S., Alcoholic Polyneuritis: Dietary Deficiency as a Factor in Its Production. New Eng. J. Med., 208: 1244, 1933.

HOSPITAL STAFF TRANSACTIONS

VICKSBURG SANITARIUM STAFF MEETING

The regular monthly meeting of the Staff of the Vicksburg Sanitarium was held on August 10 at 6:30 P. M. After the business of the staff and discussion of reports from the records department and analysis of the work of the hospital, the following special case reports were presented:

1. CARCINOMA OF GALL BLADDER.—Dr. J. A. K. Birchett, Jr. Discussed by Dr. R. A. Street, Jr.
2. ENCEPHALITIS FOLLOWING SCARLET FEVER.—Dr. G. C. Jarratt.
3. SPINAL CORD TUMOR.—Dr. R. A. Street, Jr. Discussed by Dr. L. S. Lippincott.

SPECIAL REPORTS:

CARCINOMA OF THE CERVIX UTERI (Lantern Slides).—Dr. L. S. Lippincott.

SELECTED RADIOGRAPHIC STUDIES WERE DEMONSTRATED AND DISCUSSED AS FOLLOWS: Gunshot fracture of femur; exostosis of radius; pulmonary tuberculosis; pulmonary actinomycosis; thorax for discussion; mixillary sinusitis; sphenoidal sinusitis; cholelithiasis; gastric ulcer; ureteral calculus.

THREE MINUTE REPORTS OF THE LITERATURE OF THE MONTH WERE PRESENTED AS FOLLOWS:

Dr. G. M. Street.—Thyrotoxicosis During Pregnancy.

Dr. L. S. Lippincott—Forced Spinal Drainage.

Dr. J. A. Birchett, Jr.—Renal Tuberculosis.

Dr. L. J. Clark—Pernicious Anemia Associated With Carcinoma of Stomach.

Dr. R. A. Street Jr.—Cancer of the Lip.

The next meeting of the staff will be held on Monday, September 11, at 6:30 P. M.

Leon S. Lippincott,
Secretary.

ABSTRACT.—CARCINOMA OF GALL BLADDER.—Dr. J. A. K. Birchett, Jr.

PATIENT, No. 1.—White female, aged 60 years. PRESENT COMPLAINT.—Pain in abdomen. HISTORY OF PRESENT COMPLAINT.—Last April while working in flower bed was leaning over pulling up weeds when she felt an acute pain in her right abdomen and back. This pain passed off after a few days and there was no more disturbance except a little soreness until three weeks ago when the pain became very acute necssitating hypodermic relief of pain. It is now necessary to take something for pain almost nightly as she complains of inability to rest or sleep and of colicy type of pain over abdomen.

For last two weeks there has been fever and some nausea and elimination has been sluggish although the stools are of good color and there is no

evidence of jaundice. There has been no definite digestive disturbance; able to eat all foods without discomfort. There has been some loss of weight. PAST HISTORY.—Never been seriously ill but once before in life; that was during "flu" epidemic in 1918; recovery without complications. Had attacks of cramp colic in fall of 1930; these lasted only for two or thre days and did not recur; could have been gall stone colic.

Has had five children, two of which were twins. No operations. Respiratory history negative, circulatory history negative, digestive history unusually normal, no gas or dyspepsia, not subject to any food distrubance, not constipated, never jaundiced, no abdominal pain. Menstrual History.—Regular, 28 days, duration five days, menapause 15 years ago. PHYSICAL EXAMINATION.—Short fat female of past 50 years, complaining of more or less constant pain in abdomen.

Head: Eyes slight tendency to strabismus, wears glasses. Blood pressure, systolic 140, diastolic 80; lungs normal. Abdomen: Tendency to ptosis, large, pendulous; lower abdomen doughy in consistancy; apparently a mass in region of descending colon (roentgenogram of colon after barium enema did not bear this out). Pain over gall bladder region and especially under costal margin directly over normal position of fundus of gall bladder. No pain in back or over kidney region. Pelvis—Essentially negative. LABORATORY FINDINGS.—Gastric analysis normal. Blood: Hemoglobin 92 per cent; erythrocytes 4,620,000, leukocytes 6,800; differential leukocyte count—small lymphocytes 27 per cent; large lymphocytes 2 per cent; monocytes 3 per cent; polymorphonuclear neutrophils, mature forms 36 per cent; band forms 30 per cent; myelocytes, basophilic 1 per cent; eosinophils 1 per cent; no malaria found. Wassermann negative; Kline and Young test, positive (1 plus); Kahn test, positive (2-plus); Eagle flocculation test, doubtful. Urine (catheter specimen): Slightly cloudy, acid, trace of albumin, no sugar; rare hyaline casts; rare pus cells; some leukocytes.

DIAGNOSIS: A diagnosis of cholecystitis, acute and chronic, and possible cholelithiasis was made from physical findings and the roentgenograms which showed a non-filling gall bladder after the dye method of Graham, administered intravenously, and colon and stomach negative. An exploratory operation was devised.

PROCEDURE.—Under gas ether anaesthesia a high upper right rectus incision was made to give adequate exposure to the gall bladder and stomach. Upon opening abdomen we found the liver edge very blunt and evidence of marked hepatitis; there were several masses over liver surface and in substance that suggested possibility of malignancy. The liver at its under surface was densely adherent to the duodenum and transverse colon which in turn were firmly adherent to gall bladder. These structures were dissected away with caution and a small thick hard mass was identified as the gall bladder. The fundus was picked up and incised, the blade of the scapel coming in contact with a hard mass with feeling of a stone. This proved to be a large single gall stone, the size of a walnut, firmly embedded in the gall bladder and adherent to it. The gall bladder in turn was firmly adherent to the liver and buried almost in its substance. Possibly the swelling of the hepatitis had caused an involvement of the gall bladder. Stone was removed by breaking it up and taking it out piecemeal. The cystic duct was not patent. The common duct and head of pancreas appeared to be negative. There were no masses nor hard areas which gave us impression of stone or growth. The common duct was not exposed because of no jaundice and we did not care to prolong surgery. A tube was placed in fundus of gall bladder after a large piece of thick tissue of fundus had been removed for biopsy. The procedure was fairly well tolerated. A postoperative diagnosis of primary carcinoma of gall bladder was made.

The postoperative progress was uneventful except for rise of temperature to 103°F. the day after operation; this dropped to normal the next morning and remained so. The cholecystotomy tube only drained serum, no bile. We expected no bile drainage because of the occlusion of the duct. The tube was placed as a safeguard in case bile should flow from the shrunken gall bladder.

Patient discharged on the 16th post operative day in good condition. Has been necessary to see her at home on several occasions and give hypodermics for severe lancinating pain in abdomen. There is still no jaundice or sign of common duct obstruction and she is having two normal stools a day.

Prognosis is necessarily poor because of the presence of malignancy which Dr. Lippincott reported as Grade III adeno-carcinoma of the gall bladder.

PATIENT, No. 2.—White female, aged 64 years, married; first seen May 31, 1926. CHIEF COMPLAINT.—Pain in left side of abdomen, and pain in back. PHYSICAL EXAMINATION. Temperature 98.8°F.; pulse 92, regular; respiration 17, regular. Blood pressure 120/80. Tenderness over liver, gall bladder and apendix. PAST HISTORY.—"Flu" in February, 1926, followed in two weeks by great soreness in abdomen, distention with gas, backache, occasional nausea and vomiting. This continued up to four weeks ago and then vomiting was continuous. For the past two weeks this condition has been better. Has had indigestion all her life, spitting up food, associated with abdomi-

nal pain and colic always on left side. For past three months has suffered much with backache.

Operated upon July 9, 1926.

PREOPERATIVE DIAGNOSIS.—Cholelithiasis, probably malignancy of gall bladder and involvement of liver and glands.

OPERATION.—Upper right rectus incision. Gall bladder covered with adhesions and stony hard. Very hard nodules throughout the liver in region of gall bladder, some as large as a pigeon egg. The wall of the gall bladder near fundus was about 1/2 inch thick, pliable, and solid. Gall bladder contained about one dozen fairly large black stones which were removed. Section of the wall of the gall bladder taken, drain placed inside of gall bladder and one alongside outside of gall bladder. Wound closed. The appendix was not inspected; wall of stomach carefully inspected and found normal. Immediate postoperative condition —Good.

POST OPERATIVE DIAGNOSIS.—Cholelithiasis, probably malignancy of gall bladder.

DISCHARGED—August 8, 1926. Condition unimproved. Patient expired a short while after leaving hospital.

SURGICAL PATHOLOGY.—Section of Gall Bladder Wall—5/x1/2x1/16 to 3/16 inch, irregular shape, smooth one side, irregular other side. Yellow, moderately firm. Few shreds, irregular yellow gray, largest 1/2x1/4x1/8 inch "from gall bladder."

Microscopic—Adeno-carcinoma (Grade II) evidently from glands of mucosa, gall bladder lining hyperplastic some areas; much ulceration, acute inflammatory and caseous necrosis. Considerable chronic inflammatory; much fibrosis.

Six calculi—1/3 to 1/2 inch in diameter, dark chocolate color, smooth, 3 to 6 sided, pramidal and irregular cuboidal. Hard; light wellow green inside.

DIAGNOSIS: Adeno-carcinoma of gall bladder (Grade II), cholecystitis, acute and chronic, cholelithiasis.

PATIENT, No. 3.—White female, aged 70 years, married, seen March 22, 1926. CHIEF COMPLAINT.—Epigastric distress. Attacks last two or three minutes. Intervals one to two weeks. Belching, dyspepsia, not influenced by one food, but by all foods. Bowels constipated, has lost weight definitely in last six months. No edema, no dyspnea. Has had several attacks, last one with acute pain in gall bladder region. No hypodermics. Blood pressure 130. Liver edges hard and one inch below costal margin; slight tenderness. No other masses or tenderness in abdomen. Admitted to hospital March 22, 1926, with diagnosis of cholecystitis, chronic. Discharged March 24, 1926, condition improved.

Readmitted to hospital April 19, 1926. Operation June 19, 1926.

Preoperative Diagnosis: Cholelithiasis, ruptured gall bladder.

OPERATION.—Upper right rectus incision. Liver showed marked induration and white dis coloration of right lobe; portion of stomach visible showed nothing abnormal. Gall bladder occupied central portion of mass and inspection was impossible. Attempt to free portion of gall bladder for examination opened a pocket containnig gas, turbid fluid and numerous small and large stones, one of these very deeply seated and wedged into what was probably the remains of the gall bladder. After removing all evident stones, tube was placed in the cavity and wound closed to exit of drein.

Postoperative Diagnosis: Cholelithiasis, ruptured gall bladder.

Patient expired July 22, 1926.

Pathological Diagnosis: Carcinoma of gall bladder and associated cholelithiasis.

SURGICAL PATHOLOGY.—1.—Material from gall bladder: (a) 35 calculi, green-brown and gray, from 3/16 inch, pyramidal, to 3/4x5/8 inch, irregular rounded. Mostly smooth, facetted; hard, but friable.

(b) Numerous shreds soft, irregular, red and gray tissue, largest 1x1/2x1/4 inch.

Microscopic: Cylindrical cell carcfnoma of gall bladder (Grade IV). Some areas suggest squamous cell carcinoma with pearls. Considerable chronic and acute inflammatory; fibrosis.

2. Section from liver—1/8x1/16x1/16 inch, white-pink, dense.

Microscopic: Similar to tissue from gall bladder; much fibrosis, some granular necrosis. Considerable acute inflammatory; some chronic inflammatory. No liver cells found.

DIAGNOSIS: Cylindrical cell carcinoma of gall bladder (Grade IV), cylindrical cell carcinoma of liver (Grade (IV), cholelithiasis.

ABSTRACT.—ENCEPHALITIS FOLLOWING SCARLET FEVER.—Dr. G. C. Jarratt.

PATIENT.—White male, aged 7 years; admitted to hospital June 23, 1933. CHIEF COMPLAINT.—Cough; sore throat; fever; rash. PRESENT ILLNESS.—Mother stated that four days before admission child complained of sore throat and had fever of 103°F. Rash faded in 36 hours. On morning of admission family physician became suspicious of diphtheria because of severe angina and membrane on tonsils. Fever has continued since onset. Slight cough since onset. No known exposure to diphtheria or scarlet fever. PAST HISTORY.—Pertusis two years ago; measles two years ago; mumps one year ago. Toxin-antitoxin mixture given two years ago without Schick test. Not vacinated against small-pox. Typhoid vaccine four

years ago. Frequent attacks of upper respiratory infection and removal of tonsils and adenoids advesed six months ago. FAMILY HISTORY.—Not remarkable. PHYSICAL EXAMINATION.—Well developed and nourished; acutely ill; can hardly swallow because of pain in throat. Nasal membrane red. "Strawberry tongue"; tonsils large and covered with white glistening membrane; no membrane; no membrane on pharynx or soft palate but soft palate showed much inflammatory and edema. Several large tender lymph nodes under mandible on both sides. Phimosis. "Mealy" feel to skin on palpation. Physical examination otherwise not remarkable. DIAGNOSIS: Scarlet Fever.

COURSE.—Apparently not diphtheria but usual scarlet fever throat. As had had toxin-antitoxin mixture and scarlet fever strepticoccus antitoxin, it was decided to wait for report on throat culture. Tnroat culture showed no diphtheria bacilli.

June 24: Temperature, 102°F. Throat shows less swelling and no spread of membrane. Throat culture shows streptococci. Urine shows trace of albumin and finely granular casts. Blood: Hemoglobin 67 per cent; erythrocytes 3,730,000; leukocytes 11,000; differentail leukocyte count, lymphocytes 32 per cent; polymorph, neutrophils 65 per cent, polymorph eosinophils 3 per cent.

June 25: Temperature 103°F. Throat improving with irrigations of salt solution. Second throat culture negative for diphtheria bacilli.

June 26: Temperature 105.4°F. Slight stiffness of neck; positive ankle clonus; Kernig and Babinski signs positive; knee jerks, hyperactive; no nystagmus; no muscular weakness. Spinal puncture made; fluid under increased pressure and slightly turbid. Cell count 1,249; differential cell count, lymphocytes 20 per cent; polymorphonuclears 80 per cent. Wassermann test negative. Lange's Colloidal Gold test negative. Globulin increased (2 plus); protein increased (2 plus). No tubercle bacilli or other organisms found. Blood: Leukocytes 18,700; differential leukocyte count, lymphocytes 34 per cent; polymorph. neutrophils 59 per cent; polymorph eosinophils 1 per cent; polymorph. basophils 6 per cent.

June 27: Temperature 105°F. Neck stiffness much less; knee jerks hyperactive; ankle clonus present. Looks much improved, eating, rational, and wants to talk. Spinal fluid culture planted June 26 shows no growth. Spinal puncture made and 18 cc. of fluid withdrawn; under pressure; clear; less pressure than on June 26. Cell count 274; lymphocytes 50 per cent; polymorphonuclears 50 per cent; sugar, 55 miligrams ped 100 cc.; globulin increased (2 plus); protein increased (2 plus); no organisms found.

June 28: Temperature 103°F. Much brighter and eating and wants to be entertained. Much less stiffness of neck; ankle conus absent; knee jerks only slightly increased. Slight desquamation of abdomen, legs, arms, and around finger and tope tips. Spinal fluid cultures planted on June 26 and 27 show no growth. Spinal puncture shows clear fluid; pressure normal; cell count 234; lymphocytes 58 per cent; polymorphnuclears 42 per cent; protein increased (2 plus); globulin increased (2 plus); sugar 58 mg. per 100 cc.; Lange's Colloidal Gold test negative; no organisms found.

July 2: Temperature 100.4°F. No stiffness of neck; knee jerks slightly hyper-active; complains of pain in site of lumbar puncture when sitting up. All spinal fluid cultures negative. Spinal puncture made and 2 cc. of clear fluid under no pressure withdrawn; cell count 131; lymphocytes 79 per cent; polymorphonuclears 21 per cent; globulin increased (1 plus); protein increased (1 plus); no organisms found.

July 5: Temperature 101°F. No complaint. No abnormal or neurological findings except hyperactive knee jerks. Spinal fluid cultures negative. Spinal puncture made and 2 cc. of clear fluid without pressure withdrawn; cell count 66; lymphocytes 82 per cent; polymorphonuclears 18 per cent; globulin increased (1 plus); protein increased (1 plus); no organisms found. Mantoux test (1-1000) negative. Schick test negative.

July 14. Temperature 100°F. Doing well; no complaint except mild headache at times. No abnormal neurological findings except ankle clonus at times and slightly increased knee jerks. Toes and fingers pealing. Spinal puncture; pressure normal. Cell count 5; lymphocytes 72 per cent; polymorphonuclears 28 per cent; globulin not increased; protein not increased; no organisms.

Daily urine examinations showed nothing remarkable. Patient discharged on July 23 after being up in wheel chair for one week. No sequelae.

FINAL DIAGNOSIS: Scarlet fever with post scarlet fever encephalitis.

ABSTRACT.—SPINAL CORD TUMOR.—Dr. R. A. Street, Jr.

PATIENT.—White male, aged 22 years; admitted to hospital June 22, 1933. CHIEF COMPLAINT.—Paralysis of the arms and legs, dura-COMPLAINT.—Illness began with loss of sensation and muscular paralysis of left arm, followed in order by same conditions in left leg, right arm, and right leg. No diplopia, nystagmus, or vertigo. Pain and stiffness of neck; unable to move head in any direction without much pain. No vomiting or abdominal pain. No urinary incontinence but marked urgency and frequency without burning. Appetite fair; much nausea after eating. No cough or chest pain. Marked insomnia. Loss of fifteen pounds in weight. For past few days difficulty in speech and mouth distorted when attempt is made to talk. Moderate fever for three weeks; no chills

or rigors and no night sweats. For past two days difficulty in breathing. No palpitation. Frequent occiptal headaches. PAST HISTORY.—Acutes gonorrhea one year ago. Wassermann test said to be negative at that time. Ten months ago, following a severe sore throat with fever and general malaise several swollen, painless glands were noted in the anterior cervical group on the right side for one week. During past winter frequent attacks of tonsillitis for which treatment was given and tonsillectomy advised. Five weeks ago tonsils were removed. Second day following operation, rather severe secondary hemorrhage, necessitating blood transfusion. Gradual improvement and in fairly good general physical condition up to onset of present illnes. FAMILY HISTORY.—Not remarkable. PHYSICAL EXAMINATION.—Temperature 99.2° F.; pulse 100; respiration 22; blood pressure 110/70. Well developed; appears undernourished and chronically ill. Several almond sized glands along anterior border of right sternocleido-mastoid muscle; not tender; apparently attacked to underlying tissues. Marked stiffness of neck; no Kernig. Generalized enlargement of lymph nodes, axillary, inguinal, and epithrochlear; no tenderness. Thorax: Symmetrical; no movement of left side on inspiration. Diminished voice and breath sounds over entire left side of thorax; diminished fremitus over same area; no rales; percussion note normal over entire lung area. No enlargement of heart; rate rapid; sounds regular and rhythmic; loud blowing systolic murmur at apex. Abdomen: Soft and flat; no masses; no herniae. Genitalia not remarkable. Rectal examination showed no masses or tenderness; prostate normal. Extremities: Limp and flaccid; some muscular atrophy. Reflexes: Deep reflexes of lower extremities very active. Ankleclonus present on both sides; positive Babinski on both sides. Gordon-Oppenheim reflex not positive. Loss of deep reflexes in upper extremities. Abdominal reflexes absent. Cremasteric reflexes absent on both sides. Speech: Difficulty in enunciation of words and mouth is twisted in a peculiar fashion when talking. Sensory: Complete loss of pain and temperature sense and loss of tactile discrimination over entire body and both extremities except head and neck. Deep sensibility is rather hard to estimate due to lack of co-operation of patient. Motor: Flaccidity of muscles of upper extremity. Muscles of lower extremity give feeling of spastic type of paralysis, although legs can be moved at ease. No motor change in muscles of face, eye-lids, or soft palate. Vaso-Motor: Skin has a greasy appearance. No tests were made for gait or position sense due to condition of patient. Spine: No curvatures or tenderness; no costo-vertebral tenderness.

CLINICAL LABORATORY.—Blood: Hemoglobin 77, erythrocytes 3,850,000; leukocytes 4,600; differential leukocyte count: small lymphocytes 29; large lymphocytes 2; monocytes 5; neutrophiles, mature 21; neutrophiles, immature 43. Some moderately ripe, few ripe and rare ring form tertian malarial parasites. Reticulocytes 0.5. Urine: Few pus and rare finely granular casts; rare pus cells. Serology: test; positive (three plus); Kahn test positive Blood Wassermann, negative; Kline and Young (three plus); Eagle flocculation test positive. Cerebro-Spinal Fluid: Globulin increased (three plus); protein increased (four plus); Fehling's solution, delayed reaction (one plus); Lange's colloidal gold curve typical of paresis. Wassermann test anticomplementary; Eagle flocculation test negative.

COURSE.—Pateint complained of pains in arms and lower limbs on admission. Given conservative treatment and sedatives for rest. The next day involuntary urination was noted and unable to expel an enema. Spinal tap did not show increased pressure; fluid was clear; only a small amount obtained. Quinine given for malaria. General condition fair. The next three days were rather uneventful with little improvement. On the night of the sixth day, patient began to have more marked difficulty in breathing and complained of rattling in throat; condition much worse; rate of respiration greatly increased. Expired suddenly early on the morning of the seventh day.

Autopsy showed glioma (spongioblastoma multiforme) of upper cervical cord, apparently involving whole of diameter of cord; membranes invaded; meningitis, chronic; encephalitis, chronic.

ABSTRACT.—CARCINOMA OF THE CERVIX UTERI.—Dr. Leon S. Lippincott.

Of 470 cervix specimens examined microscopically, 93 showed carcinoma (19.79).

Of 57 patients with carminoma of the cervix, 51 were married; two were single; four (colored), marital status not known.

Of 45 patients with carcinoma of the cervix, 3 were pregnant.

There was one stump cancer, occuring 10 years after hysterectomy for fibroids.

Complaints when first seen (45 cases): Pain—cervix and perineum (1); back (12); abdomen (14); legs (7); hips (4); arm (1); pelvis (3); head (33. Discharge—leukorrhea (7); mucoid followed by blood (2); leukorrhea followed by blood (3); flooding (9); bleeding (13); blood after coitus (1); profuse menstruation (2); irregular menstruation (1); painful menstruation (1). Loss of weight (11); fever (2); weakness (6); fatigue (1); vomiting (2); diarrhea (1); gaseous distention (1).

Of 91 cases of carcinoma of the cervix, there were cylindrical carcinoma (1); (1.1); adeno-carcinoma 2 (2.2); squamous cell carcinoma 88 (96.7). The cylindrical cell carcinoma was Grade IV; one

adenoma was Grade III; seventeen squamous cell carcinomas were Grade I. (19.32); thirteen were Grade II. (14.77); nineteen were Grade III. (21.59); thirty-nine were Grade IV. (44.32).

Of 83 squamous cell carcinomas, there were nine age 20-29 (10.84); thirty-one 30-39 (37.35); twenty-three, age 40-49 (27.71); fourteen, age 50-59 (16.87); six, age 60-69 (7.23). The youngest patients were twenty-four years of age (1 white and 1 colored); oldest sixty-eight years (white). The average age of 52 white patients was 43 years; of 31 colored patients 31 years.

AGE	COLOR	MALIGNANCY
Age 20-29	White (7)	Colored (2)
Grade I.	4	0
Grade II.	1	1
Grade III.	1	1
Grade IV.	1	0
Age 30-39	White (17)	Colored (14)
Grade I.	5	1
Grade II.	3	1
Grade III.	1	5
Grade IV.	8	7
Age 40-49	White (14)	Colored (9)
Grade I.	2	1
Grade II.	3	0
Grade III.	2	1
Grade IV.	7	7
Age 50-59	White (10)	Colored (4)
Grade I.	4	0
Grade II.	2	1
Grade III.	3	0
Grade IV.	1	3
Age 60-69	White (5)	Colored (1)
Grade I.	0	0
Grade II.	1	0
Grade III.	2	0
Grade IV.	2	1

AVERAGE AGE AND MALIGNANCY

Grade	No.	Av. Age	Inclusive Ages
I.	17	40	24-56
II.	13	43	28-58
III.	16	42	24-64
IV.	36	43	28-68

Definite knowledge of thirty-five patients with carcinoma of the cervix is available as follows:

Living (27). TIME	GRADE IV.	III.	II.	I.	
One Year	2	1	1	2	
Two Years	2	1	1		
Three Years	1		4		
Four Years	1	1		1	
Five Years		2			
Six Years	1		1		
Seven Years			1		
Nine Years			1	1	
	7	5	9	6	(27)

Treated and Dead (8) TIME	GRADE IV.	III.	II.	I.	
One Year	3				
Two Years	3				
Three Years		1			
Six Years			1		
	6	1	1		(8)

LOUISIANA STATE MEDICAL SOCIETY NEWS

MEDICAL RESERVE CORPS

The medico-military course of inactive duty training for Medical Department Reserve officers, which has been held at the Mayo Clinic during the past four years, will again be held this year from October 1 to 14, both dates, inclusive. This inactive duty training will follow the plan so well worked out under the auspices of Colonel George A. Skinner and the military features will be under his personal supervision.

This type of miltary medical training is now well established and has proved its worth during the past four years. The course offers valuable and interesting training for the Medical Department officers of all the components of our national defense. The staff and faculty of the Mayo Clinic have again placed their unexcelled facilities at the service of their government in the interest of preparedness, and have extended an invitation to all the services to participate.

This short course is equally applicable to general practitioners and specialists. The morning hours are devoted to purely professional subjects selected by the student officers. The afternoon hours pertain solely to medico-military subjects and the evening hours are covered in a lyceum course of general interest.

Application for this course of inactive duty training should be made to the Corps Area Surgeon, Seventh Corps Area, Omaha, Nebraska. Applications should state the character of the work the candidate desire to follow in the morning hours. All student officers are expected to attend and participate in the afternoon and evening sessions. Each applicant should fully understand that the invitation to accept this course of study without charge is extended by the Mayo Clinic, that the project is without expense to the Government; and that one hundred hours' credit will be given those who take and complete the course. While it is

desirable to attend the entire course, those whose time will not permit this may join or leave at any time and will receive credit for the hours spent in training. Uniforms are optional.

ST. LANDRY PARISH

At a called meeting of the St. Landry Parish Medical Society, called for the purpose of noticing the demise of Dr. E. Denegre Martin, the following resolution offered by Dr. F. J. Mayer was unanimously adopted.

Whereas, Dr. E. Denegre Martin, a native of St. Landry Parish, has crossed the Great Divide at the ripe age of three score years and ten; the St. Landry Parish Medical Society deplores the loss of a native son, whose high standing in the surgical ranks of the South, reflects honor on his native Parish.

Resolved: that this tribute to his memory be spread upon the minutes, and a copy sent to his bereaved widow, with the condolences of this body, each member feeling the personal loss of a dear and honored friend.

MADISON, EAST CARROLL AND WEST CARROLL TRI-PARISH MEDICAL SOCIETY

The Tri-Parish Medical Society held its regular monthly meeting in Epps, Louisiana, on Tuesday, August 1, 1933, at 7:30 p. m. The following members and guests were present: Doctors W. H. Hamley, J. P. Davis, G. Douglas Williams, B. C. Abernathy, of East Carroll Parish; Doctors W. McG. Dollerhide, B. L. Bailey, J. L. Kelly, Dan Kelly, T. N. Pulley, C. M. Petty of West Carroll Parish; Doctors G. W. Gaines and B. T. Ferguson of Madison Parish; Doctor S. W. Douglas of Eudora, Arkansas; and Doctor John Snelling of Monroe, Louisiana.

The guest Essayists of the evening were Dr. John Enelling of Monroe, Louisiana, and Dr. S. W. Douglas of Eudora, Arkansas. Dr. Snelling presented a paper on "Lowering Mortality and Morbidity Rate in Acute Appendicitis".

Dr. Douglas presented a paper on "The Relation of the Physician to Society".

Dr. Dan Kelly presented a paper on "Hookworm Diseases".

These papers were freely discussed by the members of the Society and the guests.

The next meeting will be held in Oak Grove, on Tuesday, September 5, 1933, at 7:30 p. m.

G. Douglas Williams, M. D.
Secretary.

UNITED STATES PUBLIC HEALTH SERVICE

Assistant Surgeon M. K. King, Relieved from duty at New Orleans, La., and assigned to duty at the Marine Hospital, Savannah, Ga. July 7, 1933.

Surgeon T. J. Liddell. Relieved from duty at New Orleans, La. on or about August 15, and assigned to duty at the Marine Hospital, Chicago, Ill. August 3, 1933.

HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of Census, has issued the following weekly reports concerning the health of New Orleans. For the week ending July 15, 1933, there were 130 deaths in the City of New Orleans, with a death rate of 14.1. There were 73 white deaths and 48 colored deaths. There were only 19 deaths in this week of children under one year. For the week ending July 22 the total deaths had increased to 146. During this week the infant mortality rate in the colored was 92 and 62 in the white. For the week ending July 19, the total deaths were 126, being almost evenly divided between the two races, being 65 white and 61 colored. There were 7 deaths in children under one year. For the week ending August 5 the total deaths were 156 with a death rate of 16.9. Of these there were 81 white and 75 colored. The total infant mortality under one year was 12, 6 white and 6 colored, the mortality rate being 53 and 92 respectively.

INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, Epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the State of Louisiana, which contain the following summarized information.

For the week ending July 22 there were 36 cases of cancer, 13 of diphtheria, 14 of gonorrhea, 38 of malaria, 52 of pneumonia, 52 of pulmonary tuberculosis, 116 of syphilis, 11 of septicemia, 38 of typhoid fever, 21 of whooping cough. There was one case of epidemic cerebrospinal meningitis reported in the Parish of Orleans. Five cases of typhoid fever reported by the City Board of Health, New Orleans, were imported. There was one case of leprosy from the Parish of Orleans. Reported cases of pellegra were 9 as compared with 15 in the corresponding week in 1932 and 22 for the previous week of 1933. In the thirtieth week of the year ending July 29, the most noticeable feature of the report was the increase in the number of cases of malaria reported, there being 92 cases reported as compared with 38 reported the previous week and 24 reported the corresponding week of last year. There were 28 cases of typhoid fever reported. A case of anthrax was reported from Cameron Parish. There were only 5 cases of gonorrhea reported during this week. For the week ending August 5 the malaria cases reported

were 96. A note appended to this report, however, stated that the unusual number of malaria cases reported during the last two weeks is the result of special survey in several parishes in the State. A case of typhus fever was reported in Orleans Parish during this week. There were 45 cases of pneumonia, 53 of typhoid fever, 2 of poliomyelitis, one in the Parish of Orleans and one in the Parish of Winn. During the week ending August 12 a case of tularemia was reported, 55 cases of typhoid, 74 cases of malaria, and 6 cases of small pox all in LaSalle Parish.

WOMAN'S AUXILIARY NEWS

OFFICERS OF THE WOMAN'S AUXILIARY OF THE LOUISIANA STATE MEDICAL SOCIETY

President—Mrs. John H. Musser, New Orleans.

President-Elect—Mrs. T. Henry Watkins, Lake Charles.

Recording Secretary—Mrs. Francis E. Lejeune, New Orleans.

Corresponding Secretary—Mrs. S. Chaille Jamison, New Orleans.

Treasurer—Mrs. Isidore Cohn, New Orleans.

Vice-Presidents—Mrs. George Kreeger, Lake Charles; Mrs. William J. Norfleet, Shreveport; Mrs. John B. Benton, Minden.

Parliamentarium—Mrs. Charles E. Rew, Shreveport.

Chairmen of Standing Committees

Organization—Mrs. George Kreeger, Lake Charles.

Program—Mrs. Jacob M. Bobenheimer, Shreveport.

Finance—Mrs. Alfred D. Tisdale, Monroe.

Legislation—Mrs. John L. Scales, Shreveport.

Public Relations—Mrs. Frederick G. Ellis, Shreveport.

Hygiene—Mrs. L. Walter Gorton, Shreveport.

Revisions—Mrs. Roy B. Leavell, Bastrop.

Press and Publicity—Mrs. Wiley R. Buffington, New Orleans.

Printing—Mrs. Brooke C. Garrett, Shreveport.

Archives—Mrs. Michael Shelly Picard, Shreveport.

Historian—Mrs. Herman B. Gessner, New Orleans.

Exhibits—Mrs. W. P. Bordelon, Lake Charles.

Councilors

1st—Mrs. H. E. Bernadas, New Orleans.
2nd—Mrs. A. I. Levin, New Orleans.
3rd—Mrs. P. A. Boykins, Jeanerette.
4th—Mrs. M. J. Rivenbark, Haynesville.
5th—Mrs. C. P. Gray, Monroe.
6th—Mrs. E. M. Levert, St. Francisville.
7th—Mrs. Olin Moss, Lake Charles.
8th—Mrs. D. C. McBride, Alexandria.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

FROM OUR PRESIDENT TO EACH MEMBER OF MISSISSIPPI MEDICAL ASSOCIATION

I wish again to call the attention of the members of the Mississippi State Medical Association to the importance of increasing the membership of our county or component societies. These societies are the very foundation of organized medicine. Unless we build up a strong active membership in them we cannot hope to have an efficient State Medical Association. Our State Association can only be as strong as the foundation upon which it rests. The importance of a strong, militant organization was never so necessary as it is today. Whether we like it or not the day of individualism has passed. We physicians must realize that it is only by teamwork that we may be able to promote the best interests of the profession and preserve unchanged the high ideals that have guided the conduct of our profession in the years past.

A steady drive for increased membership should be begun without delay and continued until every eligible physicians is enrolled in orgazined medicine. A survey of the state reveals the fact that we have fourteen hundred physicians registered to practice medicine in the State of Mississippi. The report of the secretary of the State Association showed that on February 1, 1933, we had seven hundred seventy-seven active members. On this same date there were six hundred twenty-three physicians practicing in the state, who were not members of any medical society. Our percentage of membership was, therefore, only slightly above 55 per cent. We must materially increase this percentage. The duty devolves on each officer and member to see that every eligible physician in Mississippi is brought into organized medicine by February 1, 1934.

The State Association is your organization. It will be just what you make it. Without your aid your state officers can accomplish very little.

Each individual member should feel that it is his duty to work unceasingly to build it as strong as possible. There should be no slackers in our ranks. I ask the active cooperation of each individual member in our endeavor to build up the membership of the component societies to the highest possible point during this year.

In order to systematize our organization work, I have divided the state into three divisions;—namely, the first or North Mississippi Division, comprising the first, second, and third councilors' districts; the second or Central Mississippi Division, composed of the fourth, fifth, and sixth councilors' districts; and the third or South Missippi Division made up of the seventh, eigth, and ninth councilors' districts.

The organization work in the North Mississippi Division will be under the supervision of Vice-President E. R. Nobles of Rosedale. In the Central Mississippi Division the work will be under the direction of Vice-President J. A. K. Birchett, Jr. of Vicksburg. In the South Mississippi Division, Vice-President C. C. Hightower of Hattiesburg will be in charge.

Section II, Chapter VII of our By-Laws provides as follows: "The president-elect shall be in charge of the work of organization under the direction of the president and shall direct and advise with the vice-presidents and councilors in this phase of their work." Complying with this section of our By-Laws, Dr. E. C. Parker, President-Elect, is in charge of organization work throughout the state. I have asked the vice-presidents to report to him concerning organization work in their respective divisions. The councilors are requested to report to the vice-presidents in charge of the division in which their respective districts may be placed.

A list of non-members as shown by the secretary's report of February 1, 1933, arranged by divisions, councilor's districts, component societies, and counties has been sent to the president-elect, the vice-presidents, and the councilors.

I wish to again emphasize the importance of strengthening in every possible way our county or component societies. I hope that this drive for new members will be started at once and continued throughout the year in order that we may show a healthy increase in membership by February 1, 1934.

Fraternally,
J. W. D. Dicks,
President.

Natchez,
August 5, 1933.

LET'S SUPPORT OUR JOURNAL

Did you read the editorial, "To Our Readers," in the August number of our Journal? It is deserving of serious consideration by every member of the Mississippi State Medical Association. The New Orleans Medical and Surgical Journal is the official organ of our association and its size and make-up reflect our thought and standing. There is no question that an association is judged by its official organ.

Just the same as you and I, our Journal has felt the financial difficulties of the last few years—its income which goes to make the Journal has been seriously impaired. This is partly due to the fact that our membership is less than in some former times. Our president, Dr. J. W. D. Dicks, through a carefully thought out set-up, is seeking to remedy this shortage through the president-elect, the vice-presidents and councilors of the State Association and through the vice-presidents of the component societies. His efforts are distinctly worthy of your support and demand your active co-operation. Every member of this Association can do much to bring into membership those reputable physicians not now enrolled. Whenever you meet a man who is not a member and you know he is eligible, talk to him, show him the advantages and present need of organization and medical legal protection; tell him that only through membership in his county society can he be a member of the State Medical Association, the American Medical Association, or the Southern Medical Association. And not the least of the advantages of membership is the fact that his dues brings to him every month the New Orleans Medical and Surgical Journal and the direct thought of his own people whose problems and activities are the same as his own.

Just as serious from the financial standpoint of our Journal is the loss of advertising suffered in the last few years. And here again every member of the Association can be of real help. You are constantly purchasing medical supplies, drugs, instruments, biologicals, medical books, and a vast number of other things necessary to your practice. The people from whom you purchase profit through your patronage. Those people may rightly be expected to reciproate to some degree by supporting your official organ through advertising where advertising would bring them still further sales. If all of the members of the Mississippi State Medical Assosociation and the Louisiana State Medical Society would ask every detail man who calls and every business house of whom they buy if they advertise in the Journal and, if not, why not; if then they would buy only of those people who do advertise, it would not be long before our Journal would be out of financial difficultues. In thus insisting, you are not asking anything unreasonable. The advertising pages of the Journal are your safe-guard; every advertisement must pass the critical investigation of the American Medical Association; you know that an article or product advertised in the Journal is ethical, reliable and dependable. While everything that is reliable and dependable is not advertised in the Journal, the

advertising pages are a guide which you can use with reason. You can well show your confidence in and support of organized medicine by stating frankly to salesmen that you use our official Journal as a guide to your buying. Greatest success always comes from working together. If you help me and I help you, we can accomplish much more than if you do all the helping and I do nothing.

Following the publication of the editorial in the last number of the Journal, a physician of Mississippi wrote the following letter to a supply house with which it has done business:

"August 2, 1933.

"Dear Sirs:

"For a long time we have been buying biologicals and other supplies from you. Our relations have been very pleasant and from my point of view, I would like to have them continue.

"I find myself in an embarrassing position. The Mississippi State Medical Association shares with the Louisiana State Medical Society and the Orleans Parish Medical Society the New Orleans Medical and Surgical Journal. It is our official journal and in it are published the papers read before the State Association as well as monthly news and hospital items of this state.

"There is a strong feeling that members of the Association should purchase supplies from those business organizations which see fit to advertise in our journal. It has been noticeable for a considerable period that ..... has been missing among the companies selling similar products. As a member of the Association, I feel that there should be cooperation, and it will be rather difficult for me to explain why I do not live up to my convictions. I shall have to take a definite stand in the matter.

"I shall appreciate it very much if you will let me have your thought in regard to advertising in the Journal."

"Sincerely yours,"

LET'S GET BEHIND OUR JOURNAL. LET'S INSIST ON THE APPLICATION OF THE GOLDEN RULE.

COUNTY SOCIETY MEMBERSHIP

In another column is a message from our President, Dr. J. W. D. Dicks, in which he calls serious attention of the members of the Mississippi State medical practice, the urgent need of more interest Medical Association to the problems confronting and energetic action, and the necessity of securing the help of those ethical physicians not now enrolled in the Association in order to present a united front. As the leader in Mississippi, Dr. Dicks points out that every member has a duty. It is to be hoped and expected that Dr. Dicks will receive active and helpful support.

One may well wonder if the loss in membership of the Association is not greater than the circumstances make really necessary. There are many factors to be considered. It is possible that the financial conditions of the past few years may have been sometimes used as an excuse to drop membership. Nowadays in order to sell successfully, real value must be given for money paid. There are those who believe as did Dr. Howard, that the big society with only two to four meetings a year does not accomplish the purpose for which county societies were intended. Frequent meetings within easy reach of all members, where doctors may get together and discuss local matters and exchange ideas bearing on local conditions is important. It is also possible that membership in the large societies depends more on loyalty to organized medicine than on value received and in many cases there may be a limit to which loyalty will carry especially if money is rather short.

It is not difficult to understand that a doctor practising in the country away from others, who has to travel one hundred miles or more to attend a meeting with program made up of papers on complicated surgical procedures of which he knows little and for which he has less use, might feel that it was not worth the cost in money, time and effort.

Programs means a great deal. Every program should have at least one or more papers and discussions of general interest to the country practitioner. Those same country practitioners should be urged and, if necessary at first, required to present papers themselves. When a man is doing something for his society, he is an interested member.

It is possible to enroll eighty-five per cent of the desirable doctors of Mississippi in organized medicine. But, many must be shown that they cannot stay outside.

DELTA MEDICAL SOCIETY

The second meeting of the Delta Medical Society for this year will be held Wednesday, October 11, at Belzoni.

F. M. Acree,
Secretary.

EAST MISSISSIPPI MEDICAL NEWS

The regular meeting of the East Mississippi Medical Society which was to be held on the fair grounds of Neshoba county on August 17, has been postponed and will be held at the above named place on Thursday, August 24, beginning at 2:30 P. M.

At this meeting Kemper, Clark and Leake coun-

ties are to be officially united with the East Mississippi Medical Society and other business of importance will be taken up.

The following program has been prepared:

Resection of the Presacral Nerve for the Relief of Pelvic Pain.—Dr. Frank Hagaman, Jackson.

Discussion opened by Dr. C. H. Harrison.

Doctors' Business.—Dr. A. C. Bryan, Meridian.

General discussion.

This is the first meeting of this nature we have for this year and is given through invitation by Neshoba county physicians.

T. L. Bennett,
Secretary.

Meridian,
August 10, 1933.

HARRISON-STONE-HANCOCK COUNTIES MEDICAL SOCIETY

August Meeting—King's Daughters' Hospital, Gulfport, Wednesday, August 2, at 7:30 P. M.

E. A. Trudeau,
Secretary.

ISSAQUENA-SHARKEY-WARREN COUNTIES MEDICAL SOCIETY

The regular monthly meeting of the Isaquena-Sharkey-Warren Counties Medical Society was held at the Hotel Vicksburg on August 8, with 23 members and three guests present. After a supper served at 7 p. m. and the reading and adoption of the minutes, the following papers and discussions were presented:

1. Paralysis of the External Muscles of the Eye —Dr. C. J. Edwards.

Discussed by Drs. H. H. Johnston, and E. H. Jones. Dr. Edwards closed.

2. Hyperparathyroidism—Dr. L. J. Clark.

Discussed by Drs. Allen Grimes, L. S. Lippincott and W. D. Anderson. Dr. Clark closed.

Dr. L. J. Clark, Vicksburg was chairman of the program committee.

The Society voted to oppose the proposed changes in the By-Laws of the Mississippi State Medical Association to make a member who engages in contract practice subject to expulsion from his component society.

At the request of the chairman of the local committee of the President's Emergency Reemployment Campaign, Dr. L. S. Lippincott was elected as representative of the Society on the committee.

Dr. H. H. Austin, Bovina, a former member of this society, was reinstated.

The next meeting of the Society will be held at the Hotel Vicksburg, Tuesday, September 12, at 7 p. m. Dr. F. Michael Smith, Program Chairman, has announced the following papers and discussions for the September meeting:

1. Congenital Syphilis—Dr. G. C. Jarratt.

Discussion to be opened by Dr. W. P. Robert.

2. Allergic Nasal Conditions with Case Reports —Dr. Edley H. Jones.

Discussion to be opened by Dr. H. H. Johnston.

3. Essentials In Smallpox Prevention—Dr. F. Michael Smith.

Discussion to be opened by Dr. T. P. Sparks, Jr.

TRI COUNTY MEDICAL SOCIETY

The regular meeting of the Tri-County Medical Society was held at Tylertown, June 13.

A little spice and variety to the program was enjoyed by the addition of unusually interesting and instructive papers given by our honor guests, Mr. Thomas P. Brady, Brookhaven, subject, "The Law of Negligence and Malpractice As Applied To Physicians;" and Dr. Robert H. Brumfield, McComb, subject, "Treatment of Abdominal Pain".

Dr. W. H. Frizell, Brookhaven, Councilor for this district very ably discussed "Our Legal Defense," and clearly defined what we might and might not expect from this department.

Dr. O. N. Arrington, Brookhaven, gave us an interesting paper, subject, "Significance of Abdominal Pain."

An arrangement for the exchange of essayists between the Tri-County and Central Medical Societies was discussed, voted and adopted.

Dinner was served at the hotel at 12:30 p. m.

H. R. Fairfax,
Secretary.

Brookhaven,
June 21, 1933.

CLAIBORNE COUNTY

The friends of Dr. E. D. Barron, of Patterson, will be glad to learn of his improved condition.

Dr. G. W. Acker is enjoying a vacation visiting the Century of Progress Exposition in Chicago. From there, he goes to his summer home in Michigan.

We regret to learn of the illness of Dr. E. P. James, of Hermanville, necessitating hospitalization.

Dr. and Mrs. W. N. Jenkins, of Port Gibson spent a week at the World's Fair in Chicago. Dr. Jenkins also attended the convention of Illinois Central Railroad Surgeons.

W. N. Jenkins,
County Editor.

Port Gibson,
August 4, 1933.

DESOTO COUNTY

There is a dearth of news among the fraternity this month.

The oldest physician in the county in age but

not in appearance is Dr. W. A. Powell of Hernando. The doctor lives in a fine old two-and-a-half story antebellum home just out of Nesbitt on the Jefferson Davis Highway.

He delights to entertain his grandchildren and friends and as the shadows gather around him he can look back on a well spent life and forward to a happy home beyond.

L. L. Minor,
County Editor.

Memphis,
Route 4,
August 10, 1933.

HINDS COUNTY

Dr. J. F. Armstrong and Dr. L. W. Long are away on a two weeks' camp with the National Guard now training at Alexandria, La. Dr. J. E. McDill is also attending the same camp.

There where no meetings of the staffs of the various hospitals in Jackson. The staff meetings are not held during the months of July and August.

Dr. G. W. F. Rembert has been in Memphis visiting Dr. Julius Crisler who has been confined to the hospital there following a recent operation. We are all delighted that Dr. Crisler is recovering nicely.

On July 26, Dr. N. C. Womack read a paper on "Some Pediatric Problems" at Lexington before the Winona District Medical Society. He reports a mighty good time.

We regret very much to have to report the death of Dr. J. Preston Kennedy of Greenwood, who died here in Jackson on August 5, at the Baptist Hospital.

W. F. Hand,
County Editor.

Jackson,
August 9, 1933.

ISSAQUENA COUNTY

The scribe from Issaquena County has not reported as often as he would like, but not altogether his fault.

On account of the very limited number of physicians in Issaquena we cannot offer much worthwhile news of our medical men and their families. There are only three of us, and this scribe is one of the three. He is modest beyond his years, and has a delicacy in writing about himself, but in this case he cannot help it. He knows it would never do for him to send in an item about one or two of our doctors without mentioning the third.

One of the trio enjoyed a trip to Memphis on August 6, and was struck by the fact that the planters of the three upper delta counties are not plowing up their cotton by Government orders, while the field of the lower counties are white with open cotton bolls already plowed under by the same order. Another proof of the futility of trying to get farmers to cooperate.

Two of us, members of our County Board of Supervisors, visited Jackson recently to confer with the State Welfare Board in regard to the continuation of R. F. C. relief in our country. We will dispense with it after August.

A third member was fortunate in attending the August meeting of the Issaquena-Sharkey-Warren Counties Medical Society in Vicksburg on the 8th inst. A recent innovation of this society is the banquet which immediately precedes each meeting. This feature has proved to be a drawing card, and is materially increasing the attendance. Formerly a dutch lunch followed each meeting, but the banquet at the same price, is proving more popular.

Dr. T. W. Huey, Grace, was elected part time health officer of Issaquena County at the August meeting of the Board of Supervisors. Pardon the mentioning of names, but it was necessary in this instance.

W. H. Scudder,
County Editor.

Mayesville,
August 10, 1933.

LEFLORE COUNTY

Dr. Fred W. Adams of Brooklyn, N. Y., recently visited his brother, Dr. J. C. Adams, of this place.

Dr. A. H. Little of Oxford was the guest of Drs. Gillespie and Otken on July 15.

Dr. G. Y. Gillespie of Duck Hill, spent July 19 in Greenwood with his son, Dr. G. Y. Gillespie, Jr.

Dr. F. B. Mitman of Huntington, Indiana, stopped over in Greenwood to visit some friends after a trip to Cuba.

Those attending the funeral of Dr. J. P. Kennedy at Jackson were: Drs. J. C. Adams, George Baskerville, I. B. Bright, W. B. Dickins, G. Y. Gillespie, Jr., L. B. Otken, F. M. Sandifer, W. G. Tabb, of Greenwood, Dr. Edgar Giles, Avlon and Dr. A. M. Gill, Swiftown

W. B. Dickins,
County Editor.

Greenwood,
August 8, 1933.

DR. JOHN PRESTON KENNEDY

It was a shock to the entire community to learn of the death of Dr. J. Preston Kennedy at the Baptist Hospital at Jackson, early Sunday morning, August 6, 1933, after an illness of nine days. Funeral services were held from the home of his brother Dr. Barney Kennedy, Woodland Hills, Jackson, and interment was made in Lakewood Memorial Park in Jackson.

Dr. Kennedy was one of the most skilled and prominent young surgeons in Mississippi, and one of Greenwood's outstanding citizens. He numbered his friends by the scope of his acquaintanceship, and hundreds of people will mourn his death at the apex of a brilliant career as a personal bereavement.

He first located at Vancleve, Jackson County, remaining there for three years before moving to Greenwood where he quickly rose to recognition as an outstanding physician and surgeon.

The Physicians and Surgeons Building at Washington and Henderson Streets, one of the most modern and best equipped clinics in the state, was built and owned by Dr. Kennedy and will stand as a memorial to him in the community in which he resided and served so faithfully as a surgeon and radiologist.

Dr. John Preston Kennedy, the son of Dr. and Mrs. J. H. Kennedy of Pinola, was forty-one years of age. He was a member of the Baptist Church, a World War Veteran, a Mason, a member of the Kiwanis Club, member of the Delta Medical Society, State Medical Association, American Medical Association, and a member of the Radiological Society or North America.

The doctors of Leflore County extend their deep sympathy to the bereaved family. The medical profession has lost a member who honored it with the high standards he maintained, and sick and suffering humanity have been deprived of the services of one who ministered kindly and effectively to their ills.

MARSHALL COUNTY

Dr. C. R. Senter and family spent two weeks the first part of August on the Gulf Coast, stopping at Biloxi and Gulfport.

Dr. D. R. Moore and his family are spending their vacation in Chicago, visiting the "Century of Progress Fair" and other interesting places in the City of Chicago and surrounding cities.

Dr. Moore and Dr. Senter both live in Byhalia.

D. R. Moore,
County Editor.

Byhalia,
August 10, 1933.

MONROE COUNTY

The coming of "The Journal" reminds me that it is time to do my part. That expression leads me to say that the scream of the "Blue Eagle" that is heard today in every city, town, village and hamlet within the borders of our nation, is calling upon us all to "do our part." Many years ago I received a letter from one who was loved by many in Mississippi but one who was feared and hated by many others. I shall never forget that letter nor shall I forget the note of pain and self abnegation that rang in every word and sentence. The writer said: "our poor country is at war. I did all I could to avert it. Would to God I might have been able to do more. But we are at war—there are but two courses open before us, and one of them is impossible. We must either win this war or back out of it. That course is unthinkable. We must win if it it takes every dollar of treasure and every drop of blood that flows in the veins of our splendid young manhood. Please tell my friends these are my convictions and sentiments". We won the war although it cost us ALL our treasure. Now we are at war again. This was is a most holy war; for it is a war against the insatiable greed of the money lords and the power of political usurpation of the rights of freemen born; the right to labor and to receive a living wage in order that food, shelter and clothing may be provided for those whom they love. In my opinion a decisive moment has come. Every American has been LEGALLY drafted. There must be no evaders of the draft; for it will take every dollar we have to win the war. As said Lord Nelson, so say I—Every American patriot is expected to do his part now. HIRE, PAY, SPEND—What if our business should fail? Let us think of the many millions who are unemployed. Unless work and wages are provided for them before winter comes nothing short of bloodshed, arson, revolution with the downfall of our civilization can be hoped for. Please pardon this interjection, but remember and ponder well what I have said.

I have frequently said that my society—the society does not belong to me, I belong to the society—is the largest and best society in the state. But Tom Dye made me shiver when he gave out the statement that one other society had just one member less than ours. But even though it might come to pass that some society might show as many members as can we, still I shall claim that ours is the best. Anyone who might be inclined to dispute or doubt this statement, can, by attending our next meeting, which will be held in Calhoun City, September 19, see that I have not tried to deceive you. Look out for the program and be sure to meet me there.

Tnings are very quiet in Monroe. We have less than our quota of sickness. Crops are somewhat more promising than for some years and we are hoping for better prices. When the money for cotton that has been plowed under begins to come in, perhaps we may see around the corner.

None of our county doctors have been sick—neither have any of them been to the fair so far. Dr. B. C. Tubb, of Smithville, together with his wife, son and daughter, have recently visited the

Eldorado section of southwest Texas. They reported an enjoyable trip.

Dr. M. Q. Ewing's wife and little son have made a pleasant visit to friends and relatives in Washington, D. C. I think this about covers the case as our news paper friends would say.

I hope you, everyone of you, will extend the glad hand to my good friend Dr. Wm. Krauss, who has joined the Stingily Laboratories at Meridian.

Again I say, meet me at Calhoun City.

G. S. Bryan,
County Editor.

Amory,
August 2, 1933.

MONTGOMERY COUNTY

Since our last writing everything seems to be moving along smoothly. There is not much sickness and collections are very poor.

Dr. J. F. Howell of Kilmichael died July 23 of angina pectoris.

The Winona District Medical Society met in Lexington July 27, with a fairly good crowd present. The following program was held.

Some Pediatric Problems—Dr. N. C. Womack, Jackson.

Autogenous Vaccine in Pyelitis—Dr. R. E. Wilson, Greenville.

Congenital Duodenal Adhesions—Dr. Nathan Kendall, Jackson.

Congenital Pyloric Stenosis—Dr. W. H. Curry, Europa.

Dr. E. W. Holmes of Winona, is leaving today for Chicago to the World's Fair, and will then go to Mayo's for a few weeks.

Dr. O. E. Ringold of Winona, has located in Cleveland.

J. O. Ringold,
County Editor.

Winona,
August 9, 1933.

PANOLA COUNTY

Dr. W. C. Lester of Batesville made a business trip to Memphis, Tenn., recently.

Dr. Priddy of Memphis made a visit some days ago to his former home, Charleston, and in returning to Memphis stopped in Batesville for a short visit.

Mr. Murphy Wood, son of Dr. G. H. Wood of Batesville has returned from New Orleans where he has been attending Soule's Business College.

Dr. C. F. Floyd of Phoenix City, Alabama, is now physician in charge of Tyro and Camp Conner in place of Dr. Stovall, who was sent to Camp McClellan, Alabama.

Governor Conner made a very pleasing address at the C. C. Camp Friday afternoon which was thoroughly enjoyed by quite a number of Panola County citizens, as well as the camp boys and officials.

G. H. Woods,
County Editor.

Batesville,
August 8, 1933.

PONTOTOC COUNTY

Dr. E. G. Abernethy of Algoma carried his daughter to Memphis this morning for a mastoid operation.

Dr. E. B. Burns of Ecru and Dr. A. H. McGregor of Randolph were pleasant callers a few days ago. We are having very little sickness in Pontotoc county for the time of year.

The staff meeting of the Houston Hospital was largely attended last Thursday night.

Some of our doctors are spending their idle time fishing and report that the fish are biting fine.

R. P. Donaldson,
County Editor.

Pontotoc,
August 8, 1933.

SCOTT COUNTY

Dr. Anderson asked me to send in the following news items for Scott County.

Dr. W. E. Anderson, son of Dr. and Mrs. W. C. Anderson of Forest, arrived in Forest from Seattle with his bride the latter part of July to take over the practice of his father, who has been confined to his bed for the past five months and is still seriously ill. Dr. and Mrs. Anderson made the trip from Seattle to Forest by auto.

Dr. Anderson was born and raised in Forest and received his medical training at the University of Mississippi and at the University of Illinois. Since his graduation from Illinois, he has been in the Public Health Service and has served in the Marine Hospital at New Orleans and in the new Marine Hospital at Seattle, Washington, at which place he was stationed at the time he removed to Forest.

Dr. and Mrs. R. B. Austin and sons of Forest, left last Sunday for the World's Fair to be gone a week or ten days.

Dr. W. E. Anderson has been appointed county health officer to serve the unexpired term of his father, Dr. W. C. Anderson, who resigned on account of ill health.

Mrs. W. C. Anderson,

Forest,
August 9, 1933.

SHARKEY COUNTY

Dr. and Mrs. H. S. Goodman, Cary, are spending their vacation in Virginia with relatives.

Dr. Rex Goodman, Mobile, spent his vacation in Cary with his mother, Mrs. B. Goodman. Dr. Goodman is in the U. S. Public Health service and will now be located at Savannah, Georgia.

Dr. and Mrs. E. B. Stribling, Rolling Fork visited their parents at Philadelphia, recently.

W. C. Pool,
County Editor.

Cary,
August 12, 1933.

SIMPSON COUNTY

Dr. R. E. Giles, Mendenhall, county health officer, is conducting his annual campaign against typhoid fever with his needle and serum. If the people respond as they should our county will be practically immune from this dreaded disease.

Mr. and Mrs. A. W. Walker, Magee, have just returned from Chicago where they spent a week seeing all they could at the Century of Progress.

Mr. and Mrs. W. W. Diamond, Jr., Magee, have returned from their vacation.

Dr. W. W. Diamond, Magee, has been on the sick-list recently but is now able to be up and about his practice

Malaria is very prevalent in this section of the county and is being fought by our doctors. They say that there is more than in at least fifteen years. We are using atabrine quite successfully. How do you like it?

E. L. Walker,
County Editor.

Magee,
August 12, 1933.

SMITH COUNTY

Dr. G. E. Eddy, Heidelberg, is taking a two weeks' course in Saluda.

Dr. W. C. Lamb, Montrose, is still confined to his bed.

J. B. Thigpen,
County Editor.

Bay Springs,
August 6, 1933.

TALLAHATCHIE COUNTY

Dr. John A. Harris, Webb, is new part-time county health officer of Tallahatchie County. He has been giving typhoid vaccine in the area east of Tutweiler where the only typhoid has been in the county for the past nine months.

Dr. J. G. Backstrom, Tutwiler, spent night and day in our capitol city, Jackson, first of week.

Dr. Arthur Smith has bought out Swann Drug Store. He and his venerable father have offices upstairs over the store as in the past ten years.

Dr. J. D. Biles, Sumner, is devoting a great deal of his time to his farming interests at Webb and Swan Lake this season. He is proving himself quite as successful a farmer as practitioner.

It will indeed be a pleasure for our clients to all become members of N. R. A. and increase pay at least 20 per cent to their doctors. The doctors will not grumble about "shorter hours and increased wages". Don't believe any class of men have been more sorely pressed and stood depression any more gracefully than the doctors of Tallahatchie County,—the State for that matter.

Dr. T. F. Clay's two eldest daughters left for World's Fair the 5th for 10 days' stay.

Dr. Felix J. Underwood made a short talk at Tutwiler enroute to Jackson on the "Know Mississippi Better" train today. They are returning from Chicago and other northern and western points. He said the fair is certainly hard on ones "Dogs."

T. F. Clay,
County Editor.

Tutwiler,
August 10, 1933.

WASHINGTON COUNTY

We are sorry to learn that Dr. R. L. Roby of Bourbon has had a spell of malaria recently. We trust that he is able to be about again.

Dr. B. C. Witte, of Shelby, Texas, visited his brother, Dr. K. L. Witte, of Leland, a few days during July. The doctors in Greenville and Leland enjoyed meeting Dr. Witte and were sorry not to have seen more of him.

Dr. F. M. Acree of Greenville has returned from his vacation, and is sporting a beautiful new car.

Dr. and Mrs. T. B. Lewis of Greenville have returned from a wonderful trip out west.

Dr. R. N. Crockett of Winterville is back home again from a western tour.

Dr. John W. Shackleford has returned to Greenville and asumed his duties as director of the Washington County Health Department, succeeding Dr. A. R. Perry. Dr. Shackleford returns here after ten months at Harvard University where on June 1 he received his degree as master of public health. He was awarded a fellowship by the Rockefeller Foundation.

Dr. Perry, who has been acting as county health officer, is now at Hot Springs, Arkansas, where he has been looking after the health of the boys and girls at Camp Ki-Y. He will return here next week and go to Sanatorium, later going to Harvard University to take a degree as master of public health.

John G. Archer,
County Editor.

Greenville,
August 8, 1933.

WEBSTER COUNTY

The doctors of Webster county have been real busy for the last month.

The writer attended the meeting of the Winona District Medical Society at Lexington, July 27. A splendid program was given on diseases of children.

Dr. W. W. Gore, Embry, age 79, died at his home July 13 of apoplexy. He was the father of Webster County, representative and an uncle of the blind Senator Gore of Oklahoma.

W. H. Curry,
County Editor.

Eupora,
August 9, 1933.

WINSTON COUNTY

The Winston County Medical Fraternity will meet in regular session this afternoon at 3 o'clock. We are hoping we will have a full attendance. Dr. W. B. Hickman is to read a paper on some subject he sees fit to select.

The stockholders of the Winston County Hospital lot had a meeting and planned to dispose of the lot to the county conditioned on them obtaining money from the federal funds and building and equiping a hospital. It has not as yet materialized whether or not they can get such funds.

Dr. S. W. Pearson was in Meridian this week, taking a patient for hospital treatment.

The writer and family were happy to have Mr. and Mrs. E. N. Ballard of Starkville, their daughter and son-in-law, with them Sunday and Sunday night.

Our doctors are somewhat optimistic at this time. We are looking for a collection of more money and less hogs and corn this fall.

M. L. Montgomery,
County Editor.

Louisville,
August 8, 1933.

LEST WE FORGET THEIR GOOD WORKS

M. S. CRAFT, M. D., Jackson Mississippi
President, Mississippi State Medical Association
1875-6

Mijaman Sidney Craft was born in Jackson, Miss., August 6, 1827 and died at that place April 8, 1888 of locomotor ataxia, after an illness of more than a year.

He graduated from the University of Louisville in 1851 and had two courses of lectures, subseuently, at Jefferson Medical College, beginning the practice of his profession in Jackson in 1853. He was appointed surgeon in the Provisional Army of the Confederate States May 18, 1861 and assigned to duty with the Twelfth Mississippi, serving with the Army of Northern Virginia until February 1865, when on account of ill health he was relieved and assigned to hospital duty at Meridian, Miss. After the war he resumed practice in Jackson. He was secretary of the original meeting of the Association in 1856, was elected corresponding secretary at the second meeting, in 1869, and served as vice-president 1873-4. For many years he made collections of reports of surgical cases in Mississippi, which collection constituted an important feature of the meetings of the Association and of the Transactions in which they were printed. He served as a member of the committee of seven experts selected by the lower house of Congress in 1878 to inquire into the origin, introduction and prevention of epidemic diseases in the United States.

Dr. Craft was married in 1871 to Miss Julia Barr and was the father of four children, of whom the eldest died in infancy.

TRANSACTIONS, 1888.

NOTE.—The above is an abstract from the History of the Association, and is published for the purpose of inviting additions and corrections. If anyone knows any such, please communicate with the editor.

NEWTON INFIRMARY

Dr. and Mrs. Omar Simmons left Monday for Chicago where Dr. Simmons will take some special work in surgery, visit some of the leading hospitals and attend the Illinois Central R. R. Surgeons' meeting. They will also visit the Century of Progress Exposiiion and expect to return the first of next week. Dr. Simmons has the management of Newton Infirmary and Mrs. Simmons is superintendent of nurses.

Dr. M. L. Flynt, who still retains a connection with the Newton Infirmary, left last Saturday for the Mayo Clinic, Rochester, Minn., going by way of Chicago and will also see the fair before returning to his home in Meridian.

Dr. W. E. Box who for the past year has been forced to give up his practice on account of a throat paralysis has now resumed his practice and almost completely recovered.

Dr. T. E. James, who recently completed his medical course in the University of Tennessee, has

located in Newton and has offices in McBeath's Drug Store.

Mrs. S. Kemp,
Secretary.

Newton,
August 9, 1933.

Acknowledgment is made of the receipt of a reprint, "The Treatment of Infections and Carbuncles of the Face and Lips," by H. A. Gamble, M. D., Greenville.

MISSISSIPPI STATE BOARD OF HEALTH

Dr. Sanches-Vigil, Inspector General of Sanitation in Nicaragua, Central America, arrived at the offices of the State Board of Health on August 8. He will spend three and one-half months here taking part in and studying the laboratory and county health work of the Mississippi State Board of Health. Following his work here, he will go to Johns Hopkins School of Hygiene and Public Health, Baltimore, where he will work on his masters degree in public health. Dr. Sanches-Vigil is accompanied by his wife.

Mrs. Catherine R. Mayfield is now associated with Dr. T. W. Kemmerer in the State Hygienic Laboratory. Mrs. Mayfield has an A. B. degree from Maryville (Tennessee) College, and a masters degree in bacteriology and hygiene from the University of Chicago. She has worked in the City Laboratory of Savannah, Georgia; the Chicago Health Department; the Birmingham City Laboratory, and for the past six years was assistant director of the Alabama State Board of Health Laboratory.

On July 31, a meting of the full-time health officers was held at the Robert E. Lee Hotel, Jackson. The main purpose of the conference was to explain the new reports which will be used from July 1, beginning of the biennial period. The new report forms will simplify reporting.

During the month of December, 1932, 23.8 per cent of the 2,069 deaths in Mississippi occurred without medical attention. This means that 493 people in that one month died in our State without any medical attention whatsoever. The number does not include those who died suddenly and there was not time to call a doctor.

During the first four months of 1933, the figures for deaths without medical attention are as follows:

January—20.6 per cent or 360 of the 1748 people dying.

February—18.6 per cent or 279 of the 1498 people dying.

March—20 per cent or 366 of the 1780 people dying.

April—16.9 per cent or 261 of the 1547 people dying.

These figures represent deaths of people all ages—a large percentage of them were young and middle aged.

During the past twenty-four months, the State Hygienic Laboratory manufactured and distributed free of charge to physicians and health officers of this State 1,177,755 cc. of typhoid vaccine.

Ming-Ting Young of the National Health Administration, Nanking, China, spent the last week of July and first week of August with the Mississippi State Board of Health observing the sanitary engineering activities. Mr. Young was especially interested in the drainage work being done by Nelson H. Rector in some of the delta counties where malaria control is a major public health problem.

The report of the Committee on the Costs of Medical Care states that the expenditures of the medical dollar is as follows:

Physicians in private practice	29.8c
Hospitals	23.4c
Medicines	18.2c
Cultists	3.4c
Nurses	5.5c
Public Health	3.3c
Dentists	12.2c
All Others	4.2c

According to this, thirty times as much is spent for curative measures as for disease prevention and health protection. Most communities in our state spend more each year to bury tuberculosis victims than would be necessary to spend in order to control the Great White Plague.

In the search for the missing copies of the Mississippi State Board of Health reports, a letter was written to Dr. H. A. Gant who now lives in Columbia, Tennessee. Dr. Gant was President of the State Board of Health for several years following his election in 1900. His reply will be of interest to many members of the medical profession because of his early labors in and contributions to medicine in the South.

Columbia, Tenn.
July 26, 1933

Dr. Felix J. Underwood,
Jackson, Mississippi.
Dear Doctor Underwood:

Replying to your favor of 26 inst. I regret to have to say that I have no copies of the reports of the State Board of Health of Miss. for the years mentioned. The board was organized in 1877 and for many years had no funds and I do not remember seeing any publications of the board, but about the last years named 1894-1896 there should be some of the published reports somewhere. If the libraries of Dr. Wirt Johnston and Dr. J. F. Hunter, the first secretaries of the board could be traced it is possible copies might be found. The department of archives and history or the office of the secretary of state should have preserved copies. I wish I

could supply the copies needed to complete the file. I would gladly furnish one or all of them for I have an abiding interest in the medical history of Miss., and especially in the splendid scientific sanitary work of recent years in which you have done so much outstanding and progressive sanitation placing Miss., in the first ranks of the states in preventive medicine.

Your mention of the year you took the examination for license when I was President of the board and also your speaking of my having had experience in yellow fever epidemics calls to mind many incidents and happy associations of my professional life in Mississippi. Of all the years, 1897-1898-1899, when I worked most strenuously were the fullest and most satisfactory because I am satisfied that our board did some real scientific work and prevented the spread of the disease and checked the epidemic preventing the infection not only of many places in Miss. but also of Memphis in 1898.

At the request of Drs. Ramsey and Sawyer of the Rockfeller foundation and Dr. E. L. Bishop, commissioner of health of Tenn., I have written my experiences, recollections and reminiscences of my work from 1878 the year I had yellow fever up to 1899. I showed the manuscript to Dr. W. A. Evans in May and he seemed to think it worth publication and I have been thinking of submitting it to you but am doubtful whether it is of sufficient consequence to tax you with a reading of the 150 double spaced typewritten pages.

Please excuse my poor typing. I am in my 82nd year and "still going strong"—but not very strong. I cannot write with a pen and am very shaky but otherwise have good health.

With kindest regards and best wishes,

H. A. Gant.

A special program of dairy improvements work in south Mississippi was started in April, 1933, in conjunction with one Mississippi and two Louisiana milk plants which secure a part or all of their milk from Mississippi dairies. Improved sanitation at these dairies was necessary in order to enable the milk shipped into Louisiana to meet certain requirements of the Louisiana State Board of Health. Because the Mississippi State Board of Health had no funds to take on this additional work, the active cooperation of the owners of the plants was secured and they agreed to pay the cost of an inspector who would be responsible to the Mississippi State Board of Health and who would spend his full time working with the patrons of these plants. This work has been in progress four months and much interest has been manifested by the producers in improving their dairies. As a result of this effort a definite agreement was reached with the Louisiana State Board of Health that this improvement work would be on the basis of the requirements of the Standard Milk Ordinance of the U. S. Public Health Service. Satisfactory compliance with these requirements on the part of the south Mississippi milk producers will insure the retention of this market for Mississippi milk.

Beginning in the Fall of 1932, efforts were made to use funds obtained from the Reconstruction Finance Corporation to provide labor for the construction of sanitary toilets. This work on private as well as public property was made possible early in January, 1933, when the State Board of Public Welfare ruled that such work even though done on private property "would be largely for the protection of others as much as for the owner of the property." With the issue clearly put before boards of supervisors and mayors, efforts were renewed to stimulate interest in privy construction using free labor. Assistance was first given to full-time county health departments, then to part-time counties in organizing construction work. During the past six months over 700 concrete toilets have been constructed in a number of the part-time counties.

F. J. Underwood,
Executive Officer.

Jackson,
August 5, 1933.

WOMEN'S AUXILIARY TO THE MISSISSIPPI STATE MEDICAL ASSOCIATION

President—Mrs. Frank L. VanAlstine, Jackson.
President-Elect—Mrs. Henry Boswell, Sanatorium.
State Convention—Natchez—May, 1933.
Chairman Press and Publicity, Mrs. Leon S. Lippincott, Vicksburg.

We have not had any direct news of the results of the National Conveneion in Milwaukee, other than the names of the officials for the coming year. We will look forward to what our new national press and publicity chairman from Wauwatosa, Wisconsin, Mrs. Robert E. Fitzgerald, has to say to us, and hope to give her our best support. We will miss our letters from Mrs. Overholser, and hope that she will some time let us hear from her, and give us some more good advice.

Our auxiliary guest of last May, Mrs. A. B. McGlothlan, is to be the national chairman of the program. We know there will be a splendid program.

We hear from only two press and publicity chairmen, this month, and hope before time for another issue of the Journal that every one will be back on the job, feeling more like getting into line, and sending in the news.

WOMAN'S AUXILIARY TO THE HARRISON-STONE-HANCOCK MEDICAL SOCIETY

Dr. and Mrs. Cummings McCall and two children left early in June. The family stayed in Chicago and did the fair while the doctor did the A. M. A.

Dr. and Mrs. C. A. McWilliams and two daugh-

ters spent ten delightful days during the middle of June there and Miss Mary Elizabeth Gay, daughter of Drs. Fred and Emma Gay, was also a June visitor.

Drs. Dan Williams and Cy Ship attended a meeting of health officers in Jackson, July 10.

Dr. J. A. McDevitt has opened an office in Pass Christian and divides his time between there and Gulfport.

Dr. and Mrs. Henry Boswell occupied the home of Dr. and Mrs. Dan Williams during the Williams' absence, which included a motor trip thru the Carolinas, Virginias and on to Michigan to the relatives of Mrs. Williams and home via the World's Fair.

Dr. and Ira L. Parson's are now domiciled on the grounds of the beautiful Soldiers' Home recently opened. Dr. Parsons is medical officer in charge.

Dr. Harry Foster of Jackson will have charge of surgery.

Dr. Elmer Gay of Long Beach is looking after the health of the reforestation camp in Stone and Hancock counties.

Mrs. Dan Williams was elected president of the Long Beach Garden Club at its meeting in July.

Mrs. Dan J. Williams,
Press and Publicity Chairman.

Gulfport,
August 1, 1933.

WOMAN'S AUXILIARY TO THE CENTRAL MEDICAL SOCIETY

Dr. and Mrs. Harvey Garrison enjoyed a recent family reunion at Seminary. According to custom, quite a large number of the Garrison family assembled for this occasion, which occurs annually.

All Jackson mourns the passing of one of its most beloved physicians, Dr. B. L. Culley. A fittingly beautiful poem, dedicated to his memory appeared in recent publications.

Mrs. A. S. Applewhite, in her home at Hubbard's Wells, recently entertained her son, Dr. Norman Applewhite, of New Orleans. Other recent guests of this home were, Mr. and Mrs. Houston Bass of Lumberton, and Houston Bass, Jr., with whom Mr. Henry Applewhite made a delightful trip to Chicago.

Dr. and Mrs. F. E. Rehfeldt's son, Fred, was among the Jackson people to attend the World's Fair in July.

Dr. and Mrs. N. C. Womack have had as their guests, Mrs. J. K. Vardaman and her son Kimble, of St. Louis.

Dr. Joseph Flynt Armstrong and Dr. Lawrence W. Long, attended the encampment at Camp Beauregard. During their absence, Mrs. Long and small son were guests of relatives in Louisiana.

Mrs. B. F. Johnson,
Press and Publicity Chairman.

Jackson,
August 8, 1933.

HONOR ROLL

The following have contributed to the Mississippi Section of the Journal this month:

COUNTY EDITORS—W. N. Jenkins; L. L. Minor; W. F. Hand; W. H. Scudder; W. B. Dickins; D. R. Moore; G. S. Bryan; J. O. Ringold; G. H. Wood; R. P. Donaldson; Mrs. W. C. Anderson; W. C. Pool; E. L. Walker; J. B. Thigpen; T. F. Clay; John G. Archer; W. H. Curry; M. L. Montgomery. —18.

COUNTY SOCIETIES—Delta Medical Society, F. M. Acree; East Mississippi Medical Society, T. L. Bennett; Harrison-Stone-Hancock Counties Medical Society, E. A. Trudeau; Assaquena-Sharkey-Warren Counties Medical Society, L. S. Lippincott; tri-County Medical Society, H. R. Fairfax.—5.

HOSPITALS—Vicksburg Sanitarium; Newton Infirmary, Mrs. S. Kemp.—2.

WOMAN'S AUXILIARY—Mrs. Leon S. Lippincott; Mrs. Dan J. Williams; Mrs. B. F. Johnson.—3.

OTHERS—J. W. D. Dicks; H. A. Gamble; F. J. Underwood; J. A. K. Birchett, Jr.; G. C. Jarratt; R. A. Street, Jr.—6

TOTAL—34.

YOUR EDITORS THANK YOU.

BOOK REVIEWS

Child Psychology: By Buford J. Johnson. Springfield, Charles C. Thomas Co., 1932. pp. 439.

The reader will find in this volume one of the most scientific and detailed works of its kind. It is quite different from the average psychology of today, which appeals to the lay mind. Many points known to the pediatrician, such as the fact that the child raises his head in the nursery, are here brought out. The chapters on infant responses attention and perception are of particular interest.

SUZANNE SCHAEFER, M. D.

The Gold-Headed Cane: By William MacMichael, M. D. Edited by Herbert Spencer Robinson. New Yrok, Froben Press, Inc., 1932. Illus. pp. 223. Price, $3.50.

This sixth edition of "The Gold-Headed Cane," by William MacMichael, edited by Herbert Spencer Robinson, is worthy of being in every physician's library. It is probably the most complete edition of "The Gold-Headed Cane" and is especially valuable because of the explanatory notes by the editor, all of which are given in the greatest detail. The fas-

cinating story of the cane is thus made even more interesting and certainly more instructive. In addition to the explanatory notes concerning the life of the cane, the editor has a complete chapter on MacMichel's life, his works, and his editors.

ALTON OCHSNER, M. D.

Urine and Urinalysis: By Louis Gershenfeld, Ph. M., B. S., P. D. Philadelphia, Lea and Febiger, 1933. pp. 272.

This excellent little volume briefly reviews the physiology of kidney function and the physical, chemical, and biological test that are of value in urinalysis.

In Part I of this volume the author describes methods of collecting and preserving specimens of urine. The physical characteristics, chemical compositions and abnormal constituents of urine are discussed and their clinical significance stressed.

Part II is devoted to qualitative tests, quantitative determinations and microscopical examinations of urine. The clinical interpretations of results so obtained are stated.

In Part III special examinations and tests as the P. S. P. test, concentration test, and pregnancy tests are described. This volume is to be recommended to the technician, student and practitioner.

CONRAD G. COLLINS, M. D.

Orthopedics in Childhood: By Wm. L. Sneed, New York. J. B. Lippincott Co., Phliadelphia, 1931. pp. 318.

This small volume is one of the Everyday Practice Series edited by Dr. Harlow Brooks. Its aim is to give a short description of the commoner types of orthopedic conditions and a simple type of treatment for these conditions. The subject matter is treated by regions, beginning with affections of the foot, and taking each joint ad seriatum. The methods described are for the most part those carried out at the Hospital for Ruptured and Cripples.

This work should fill a longfelt need for the general practitioner who does not care to delve in the lengthy descriptions as put out in the standard texts on orthopedics. The material is well presented and numerous case histories are included.

GEORGE C. BATTALORA, M. D.

The Law Against Abortion: By William J. Robinson, M. D. New York, Eugenics Publishing Co., Inc., 1933. pp. 123. Price, $2.00.

This work constitutes an argument in favor of repealing laws against the induction of abortion. As is well known, the induction of abortion for definite medical indications is an ethical and legal procedure; but the induction of abortion on other grounds is at present classed as an illegal operation, and is condemned as unethical and criminal by the medical profession. Dr. Robinson advocates the abandonment of this attitude so that it will be both legal and ethical for physicians to induce abortions in cases of undesired pregnancies, more particularly in illegitimate pregnancies. As is well known, the number of such abortions performed in this country annually by the patients themselves, by midwives, and by some members of the medical profession mounts up into the hundreds of thousands. Of course no accurate figures are available. The author of this book would have conditions changed so that these abortions could be performed openly and under the best possible conditions without legal or ethical objections being raised. He cites a number of cases and in particular devotes an entire chapter of twenty-one pages to discussion of the case of "Birdie and Her Baby."

He also inveighs against the reporting of criminal abortions by the physicians who are called upon to handle the cases later. He furthermore makes a statement that "if every physciian who even once in his career—under the stress of tragic circumstances in order to save the life and reputation of a young woman and the happiness of her parents—performs an abortion is a murderer, then seventy-five per cent, nay, probably 90 per cent of the medical profession are murderers." He gives no authority for this remarkable statement, and the reviewer is convinced that it is extremely inaccurate and unjustified. Such an accusation against the medical profession should not be allowed to pass unnoticed. The author puts himself in the class of the impecable ten per cent by stating that he has not committed a single abortion personally.

The reviewer does not feel that the position taken by the author is tenable. In what manner will legaliaztion of abortion be of any assistance to the ones most urgently demanding the operation, namely, those who are illegitimately pregnant? Will these patients go openly to a hospital and have the abortion induced? Could anyone imagine that under such circumstances the secrecy which they feel is so essential would be obtained? And what about the medical profession? Would legalization of abortion make the members of the profession feel differently regarding the matter, when they are importuned to interfere with an undesired pregnancy where there are no medical indications for so doing? It is the reviewer's experience that most physicians entertain a high regard for the sanctity of human life, and that they would be just as unwilling to perform an abortion in the absence of distinct medical indications even though there were no law on the subject. The reviewer feels that for these and many other reasons, the author's stand is not well taken, and that little good and very much harm would be the outcome were his views shared by the legislators of the land.

E. L. KING, M. D.